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ANNUAL REPORT

ILLINOIS FARMER'S INSTITUTE

WITH REPORTS OF

COUNTY FARMERS' INSTITUTES

FOR THE YEAR 1897.

EDITED BY

CHARLES F. MILLS, *Secretary.*

SPRINGFIELD, ILL.:
PHILLIPS BROS., STATE PRINTERS.
1897.

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LETTER OF TRANSMITTAL.

To His Excellency. JOHN R. TANNER, Governor of Illinois:

SIR:—I have the honor to transmit herewith the report of the Illinois Farmers' Institute for the year 1896.

Very respectfully,

CHARLES F. MILLS,
Secretary.

SPRINGFIELD, AUGUST 5, 1897.

ORGANIZATION.

Illinois Farmers' Institute.

CREATED BY ACT OF THIRTY-NINTH GENERAL ASSEMBLY.

OFFICERS—1896.

PRESIDENT.....	F. M. PALMER.....	CLINTON
VICE PRESIDENT.....	W. E. ROBINSON.....	GREENVILLE
SECRETARY....	CHARLES F. MILLS	SPRINGFIELD
TREASURER.....	T. W. WILSON.....	SPRINGFIELD

BOARD OF DIRECTORS:

State Superintendent of Public Instruction, S. M. Inglis.....	Springfield
Dean of State Agricultural College, Eugene Davenport.....	Champaign
President State Board of Agriculture, J. W. Judy.....	Tallula
President State Horticultural Society, T. E. Goodrich.....	Cobden
President State Dairymen's Association, Geo. H. Gurler.....	DeKalb
Eighth District, B. F. Wyman.....	Sycamore
Ninth District, Amos F. Moore.....	Polo
Tenth District, J. H. Cooledge.....	Galesburg
Eleventh District, G. A. Wilmarth.....	Seneca
Twelfth District, J. M. Thompson.....	Joliet
Thirteenth District, F. M. Palmer.....	Clinton
Fourteenth District, Oliver Wilson.....	Magnolia
Fifteenth District, G. W. Dean.....	Adams
Sixteenth District, C. G. Winn.....	Griggsville
Seventeenth District, Charles F. Mills.....	Springfield
Eighteenth District, W. E. Robinson.....	Greenville
Nineteenth District, W. H. Wallace.....	Humboldt
Twentieth District, L. N. Beal.....	Mt. Vernon
Twenty-first District, A. B. Ogle.....	Belleville
Twenty-second District.....	

COMMITTEES:

Agricultural Education—Eugene Davenport, Dean of the Agricultural College, University of Illinois; S. M. Inglis, J. W. Judy, G. W. Dean, Geo. H. Gurler.

Agricultural Advancement—J. W. Judy, President Illinois State Board of Agriculture; G. W. Dean, Amos F. Moore, C. G. Winn, Oliver Wilson.

Education of Farmers' Children—S. M. Inglis, State Superintendent of Public Instruction; Wm. E. Robinson, G. A. Wilmarth, Charles F. Mills, A. B. Ogle.

Dairy Husbandry—Geo. H. Gurler, President State Dairymen's Association; Eugene Davenport, J. M. Thompson, B. F. Wyman, J. H. Cooledge.

Horticulture—T. E. Goodrich, President State Horticultural Society; Eugene Davenport, Amos F. Moore, C. G. Winn, L. N. Beal.

Live Stock Breeding—J. M. Thompson, W. H. Wallace, G. W. Dean, A. B. Ogle, Charles F. Mills.

Transportation—Charles F. Mills, L. N. Beal, Amos F. Moore, B. F. Wyman, W. H. Wallace.

Finance—F. M. Palmer, W. E. Robinson, J. M. Thompson, Amos F. Moore, Charles F. Mills.

AN ACT CREATING THE ILLINOIS FARMERS' INSTITUTE.

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly:* That to assist and encourage useful education among the farmers, and for developing the agricultural resources of the State, that an organization under the name and style of "Illinois Farmers' Institute" is hereby created, and declared a public corporation of the State.

§ 2. It shall consist of three delegates from each county of the State, elected annually at the Farmers' Institutes for said county by the members thereof.

§ 3. The affairs of the Illinois Farmers' Institute shall be managed by a board of directors, consisting of

1. State Superintendent of Public Instruction.
2. Professor of Agriculture of the University of Illinois.
3. President of the State Board of Agriculture.
4. President of the State Horticultural Society.

5. President of the State Dairymen's Association, and one member from each congressional district of the State, to be selected by the delegates from the district present at the annual meeting of this organization: *Provided*, that the members first selected from the congressional districts of even number shall serve for one year, and the members first selected from the congressional districts of odd numbers shall serve for two years, and that the members selected thereafter to fill expired terms of office shall serve for the period of two years.

§ 4. The Board of Directors of the Illinois Farmers' Institute shall have sole care and disposal of all funds that may be appropriated by the State to sustain the organization, and shall expend the same in such manner as in their judgment will best promote the interest in useful education among the farmers and develop the agricultural resources of the State. The Illinois Farmers' Institute shall make annual report to the Governor of its transactions, which report shall include papers pertaining to its work and addresses made at the annual meeting of the organization, and a classified statement of all moneys received and of all expenditures made, and the Governor shall cause ten thousand (10,000) copies of said report to be printed, one-half for the use of the Illinois Farmers' Institute, and the remainder for the use of the State and General Assembly. It shall make no appropriation without funds in hand to meet same, and the State of Illinois shall in no event be held liable or responsible for any debt, obligation or contract made by the Illinois Farmers' Institute or its Board of Directors.

★ § 5. [There shall be held annually, under the direction of the Board of Directors, between October 1 and March 1 following of each year, a public meeting of the delegates from county farmers' institutes and of farmers of this State, at such time and place as may be determined by the Board of Directors, of not less than three (3) days' duration, which meeting shall be held for the purpose of developing the greater interest in the cultivation of crops, in the care and breeding of domestic animals, in dairy husbandry, in horticulture, in farm drainage, in improved highways, and general farm management, through and by means of liberal discussions of these and

kindred subjects, ¹ and any citizen may take part in these meetings, but only duly elected and accredited delegates from county farmers' institutes shall be permitted to vote in the election of the Board of Directors.

§ 6. The members of each new Board of Directors shall enter upon their duties the next Tuesday after their election, and hold their offices for one or two years, as provided in section 3, or until their successors are elected and enter upon their duties. It shall have power to fill vacancies in the board. It shall organize by the election of a President, Vice President, Secretary, Treasurer and State Superintendent of Farmers' Institutes, and such other officers or agents as may be deemed proper for organizing and conducting the work of the organization, who shall hold their offices for one (1) year, unless removed sooner by the board, and shall perform such duties as may be required of them by rules of the board. The Secretary, Treasurer and Superintendent may be other than members of the board.

§ 7. Rooms in the Capitol building shall be assigned to the officers of this organization by the proper authority, which shall then be under the control of the Board of Directors.

§ 8. The Board of Directors may make and enforce such rules and by-laws, not in conflict with the laws of this State, as will render its work most useful and efficient.

§ 9. For the purpose mentioned in the preceding sections, said Board of Directors may use such sum as it may deem proper and necessary, not exceeding the amount appropriated therefor by the General Assembly from the general fund for that purpose: *Provided, further*, that the

1. State Superintendent of Public Instruction,
2. Professor of Agriculture of the University of Illinois,
3. President of the State Board of Agriculture,
4. President of the State Horticultural Society,
5. President of the State Dairymen's Association,

And the present congressional representatives of the Illinois Farmers' Institute Association shall constitute the first Board of Directors of this organization, who shall have charge of the affairs of the same until their successors have been duly elected, and enter upon their duties as provided in this act.

APPROPRIATIONS FOR STATE AND COUNTY FARMERS' INSTITUTES.

The first appropriation for the Illinois Farmers' Institute was made by the last General Assembly and became available July 1, 1897.

The following is the institute bill passed at the last session of the Illinois Legislature:

WHEREAS, To assist and encourage useful education among farmers and for developing the agricultural resources of the State, the Thirty-ninth General Assembly created an organization under the name and style of the Illinois Farmers' Institute, and entrusted to it the development of a greater interest in the cultivation of crops, in the breeding and care of domestic animals, in dairy husbandry, in horticulture, in farm drainage, in improved highways, and general farm management, through and by means of liberal discussion of these and kindred subjects; and for improving the condition of the farmer by affording a better knowledge of successful agriculture.

Therefore, to sustain the same:

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly:* That there be and is hereby appropriated to the Illinois Farmers' Institute the following sums, to-wit:

1. For expressage, stationery, postage, office expenses, furniture, etc., the sum of twelve hundred dollars (\$1,200) per annum for the years 1897 and 1898.

2. For the expense of collecting an institute library the sum of one hundred dollars (\$100) per annum for the years 1897 and 1898.

3. For the expense of collecting matter and preparing manuscript, editing the annual report, and bulletins, clerk hire, etc., the sum of twelve hundred dollars (\$1,200) per annum for the years 1897 and 1898.

4. For the actual expense of district directors, and of able and practical speakers to be furnished by the Illinois Farmers' Institute to the County Farmers' Institutes, for the purpose of assisting in making their meetings of general interest and of the greatest practical benefit; for expense of organizing county institutes in counties not now organized: for the expense of printing program, advertising, and for speakers and exhibit at the State Institute, the sum of five thousand dollars (\$5,000) per annum for the years 1897 and 1898: *Provided*, that county institutes, or their representatives, shall be permitted to select their own speakers, and to have such topics for consideration as shall be of especial interest to their respective localities.

5. For the use of each County Farmers' Institute the sum of fifty dollars (\$50) per annum for the years 1897 and 1898. To be paid the treasurer of each County Farmers' Institute when such institute shall file with the secretary of the Illinois Farmers' Institute a sworn statement which shall show that said County Farmers' Institute has held one or more public sessions annually of not less than two days at some easily accessible location, which shall include an itemized bill of its expenses, a copy of its program and printed proceedings, showing the title of the papers read and by whom, and place or places of meeting, with daily average attendance, and such other information as may be needed by the Illinois Farmers' Institute to successfully assist this work.

Sec. 2. No officers or officer of any County Farmers' Institute shall be entitled to or receive any moneyed compensation whatever for any service rendered the same.

Sec. 3. That on the order of the president, countersigned by the secretary of the Illinois Farmers' Institute, and approved by the Governor, the Auditor of Public Accounts shall draw his warrant on the Treasurer of the State of Illinois in favor of the treasurer of the Illinois Farmers' Institute for the sums herein appropriated: *Provided*, that each warrant on account of a County Farmers' Institute shall show the county for whose benefit the same is drawn: *Provided further*, that if the necessary expense of a County Farmers' Institute shall not equal said sum of fifty dollars as aforesaid, then said warrant shall only be drawn for the sum expended.

ANNOUNCEMENT.

The General Assembly, appreciating the general benefits resulting from the holding of Farmers' Institute Meetings, passed a law creating the Illinois Farmers' Institute, for the purpose of developing a greater interest, through said organization, in the better cultivation of crops, in the care and breeding of the most profitable type of domestic animals, in extending dairy husbandry, promoting horticulture, directing attention to the importance of farm draining, stimulating the spirit of improvement in the construction of the public roads and discussing the best methods of general farm management.

The Board of Directors of the Illinois Farmers' Institute fully appreciates the magnitude of the work to be accomplished to meet the expectations of the intelligent and progressive element represented by the organization.

The members of the Board are under many obligations to the progressive farmers of the State for assurances of their earnest purpose to contribute to the success of the Institute work, and for hearty coöperation received.

In presenting the programme for the second annual meeting of the Illinois Farmers' Institute, the Directors have every reason to congratulate the public on the recognized ability of the speakers who have volunteered their services and the wide range of topics to be discussed by the gentlemen named on the following pages.

The lack of appropriation by the State for defraying any of the expenses of the State Institute, has necessitated large drafts upon the personal funds of the promoters of the series of meetings announced on the following pages.

It has not been possible, for the reasons stated above, to complete the arrangements contemplated for the Annual Convention of the Illinois Farmers' Institute.

PROGRAMME ILLINOIS FARMERS' INSTITUTE

STATE HOUSE, SPRINGFIELD,

TUESDAY, FEBRUARY 23, 1897.

AFTERNOON SESSION—1:30 O'CLOCK P. M.

HON. F. M. PALMER, Chairman.

Music.

Prayer—Rev. A. P. Cobb, Pastor Christian Church, Springfield.

Address of Welcome—Hon. John R. Tanner, Governor of Illinois.

Response—Hon. Charles Bogardus, Paxton, Ill.

Music.

Address—"Corn Culture and Its Commercial Products," E. S. Fursman.
El Paso, Ill.

Music.

Address—"Clover Culture in Illinois," Hon. Joseph Carter, Champaign, Ill.

Music.

Address—"Agricultural Methods with Farm Insects," Prof. S. A. Forbes.
Champaign, Ill.

Adjournment.

Music furnished by the Beethoven School of Music.

TUESDAY, FEBRUARY 23, 1897.

EVENING SESSION—7:30 O'CLOCK P. M.

HON. A. S. DRAPER, Chairman, President University of Illinois.

Music—Selected.

Address—"Entomological Work at the University," Prof. S. A. Forbes,
State Entomologist.

Address—"Lessons from the Study of Comparative Agriculture," Prof. Eugene Davenport, Director Agricultural Experiment Station.

Music—Selected.

Address—"Bacteria in Agriculture," Prof. T. J. Burrill, Professor Botany and Horticulture University of Illinois.

Address—"Economic Conservation of Soil Fertility," Prof. C. G. Holden, Professor Agricultural Physics University of Illinois.

Music furnished by the Beethoven School of Music.

WEDNESDAY, FEBRUARY 24, 1897.

MORNING SESSION—9:00 O'CLOCK A. M.

Supreme Court Room, State House, Springfield, Ill.

HON. F. M. PALMER, Chairman.

The delegates from the several congressional districts will be given ample opportunity, before all the delegates are convened as a State convention, to meet for conference and select directors of the Illinois Farmers' Institute, as provided in the act of the General Assembly creating the same.

PROGRAMME—9:30 A. M.

Call to order.

Reports by congressional delegations of the election of directors to serve for the ensuing two years as members of the Illinois Farmers' Institute.

President's Address—F. M. Palmer, Clinton, Ill.

Report of Secretary—Charles F. Mills, Springfield, Ill.

Report of the condition of the Farmers' Institute work in the several congressional districts by the directors representing the same, viz.:

8th District, B. F. Wyman, Sycamore.

9th District, Amos F. Moore, Polo.

10th District, J. H. Cooledge, Galesburg.

11th District, G. A. Wilmarth, Seneca.

12th District, J. M. Thompson, Joliet.

13th District, F. M. Palmer, Clinton.

14th District, Oliver Wilson, Magnolia.

15th District, G. W. Dean, Adams.

16th District, C. G. Winn, Griggsville.

17th District, Chas. F. Mills, Springfield.

18th District, W. E. Robinson, Greenville.

19th District, W. H. Wallace, Humboldt.

20th District, L. N. Beal, Mt. Vernon.

21st District, A. B. Ogle, Belleville.

22d District, _____

Addresses by delegates representing County Farmers' Institutes.

Adjournment.

WEDNESDAY, FEBRUARY 24, 1897.

AFTERNOON SESSION—1:30 O'CLOCK P. M.

MRS. S. NOBLE KING, Presiding.

Music—Selected.

Prayer—Rev. Euclid B. Rodgers, Pastor Central Baptist Church, Springfield, Ill.

Address—"Surroundings of the Farm Home," Miss Helen Reihl, Alton, Ill.

Address—"Modern Conveniences for the Farm Home," Hon. S. A. Bulard, Springfield, Ill.

Music—Selected.

Address—"Atmosphere of the Farm Home," Mrs. L. L. Bedell, Holder, Ill.

Address—"The Farmer's Table," Mrs. H. M. Dunlap, Savoy, Ill.

Discussion of above addresses.

Adjournment.

Music by Prof. Herbert W. Owen, Springfield, Ill.

WEDNESDAY, FEBRUARY 24, 1897.

EVENING SESSION—7:30 O'CLOCK.

HON. W. E. ROBINSON, Chairman.

Music—Selected.

Address—"Work of the State Board of Agriculture," Hon. J. Irving Pierce, President State Board of Agriculture.

Address—"Work of the State Horticultural Society," Hon. T. E. Goodrich, President State Horticultural Society.

Address—"Work of the State Dairymen's Association," Hon. Geo. H. Gurler, President State Dairymen's Association.

Address—"Work of the State Poultry Association," Hon. Grant M. Curtis, President Illinois State Poultry Association.

Address—"Work of the Illinois Bee-Keepers' Association," Hon. C. C. Miller, President Illinois Bee-Keepers' Association.

Music—Selected.

Address—"Township Farmers' Institutes," Hon. W. J. Johnston, Morrison, Ill.

Address—"Township High Schools," Hon. S. M. Inglis, State Superintendent of Public Instruction.

Discussion of above addresses.

Adjournment.

Music by Prof. Herbert W. Owen, Springfield, Ill.

THURSDAY, FEBRUARY 25, 1897.

AFTERNOON SESSION—1:30 P. M.

HON. CHARLES BOGARDUS, Chairman.

Music—Selected.

Prayer—Rev. M. F. Troxell, Pastor Grace Lutheran Church, Springfield, Ill.

Address—"Fruits on the Farm," Hon. H. Augustine, Normal, Ill.

Address—"Fruit Interests of Illinois," Hon. D. W. Prindle, Villa Ridge, Ill.

Music—Selected.

Address—"Highway Improvement in Illinois," Hon. Roy Stone, Department Agriculture, Washington, D. C.

Discussion of above topics.

Adjournment.

Music furnished by Grace Lutheran Church Choir, Springfield, Ill.

THURSDAY, FEBRUARY 25, 1897.

EVENING SESSION—7:30 O'CLOCK P. M.

HON. CHARLES A. ALLEN, Chairman.

Music—Selected.

Address—"Domestic Science at the State Fair," Mrs. John M. Palmer Springfield, Ill.

Address—"Better Dairy Education Essential to Profit in Dairy Farming," Gov. W. D. Hoard, Ft. Atkinson, Wis.

Music—Selected.

Address—"What the Farmers' Institutes Have Done for Wisconsin," Hon. Geo. McKerrow, Superintendent Farm Institutes Wisconsin.

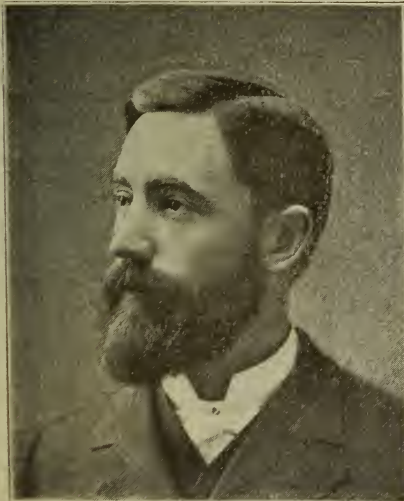
Music by Grace Lutheran Church Choir, Springfield, Ill.

PROCEEDINGS SECOND ANNUAL MEETING
OF THE
ILLINOIS FARMERS' INSTITUTE.

HALL OF THE HOUSE OF REPRESENTATIVES, STATE HOUSE,
SPRINGFIELD, ILL., Tuesday, February 23, 1897, 1:30 o'clock P. M.

The meeting was called to order by the President Hon. F. M. Palmer, of Clinton, who briefly called attention to the excellent work performed by the Illinois Farmers' Institute during the past year.

The President:—We will now listen to a selection by the Beethoven School of Music, of Springfield.



REV. A. P. COBB.

The Rev. A. P. Cobb, Pastor of the Christian Church, Springfield, was introduced by President Palmer, and opened the exercises with prayer, as follows:

*Almighty and ever blessed God, our
Heavenly Father.*

We thank Thee that we can gather here in this pleasant building, in this, the second annual convention of the Illinois Farmers' Institute. And we invoke Thy divine blessing on the proceedings of this assembly. We invoke Thy divine blessing upon this beautiful State, upon its fertile soil, and upon its honest and industrious citizens who are here represented. We invoke Thy blessing upon all the deliberations of all these conventions. May the various occupations in which these farmers are engaged lead their minds from nature to nature's God. Hear us, our Father, for Jesus' sake. Amen.

The President: Ladies and gentlemen:—It is a great pleasure to introduce Governor Tanner, who will deliver the address of welcome. (Great applause.)

ADDRESS OF WELCOME.

His Excellency, John R. Tanner, Governor of the State: Mr. President, ladies and gentlemen: Your committee has kindly invited me to address you in a few words of welcome to the State Capital.

The residents of Springfield, I believe, will join me in extending you a cordial greeting to the beautiful and hospitable Capital city of Illinois.

It is therefore a great pleasure, Mr. President and members of the Illinois Farmers' Institute, to extend you a cordial welcome to the State capital, and to assure you of the deep interest the people of the State have in the occasion that has brought you together.

In the act of the General Assembly creating the Illinois Farmers' Institute, the objects of your organization are briefly set forth in the following words: "For the purpose of developing the greatest interest in the cultivation of the crops, in the care and development of domestic animals, in dairy husbandry, in horticulture, in farm drainage, in improved highways and general farm management, through and by means of liberal discussion of these and kindred subjects."

You have also in view the proper training and education of the farmer girls and boys, recognizing, as we all must, the prime necessity of an intelligent community about you, that a great State like Illinois may grow and expand its resources in a manner somewhat commensurate with its open possibilities.

This is a source of gratification to me personally, and it must interest deeply the educational forces of the State.

You have a broad and deep foundation on which to build up an organization that may render important service in the future development of the vast agricultural resources of the State.

The provision of the law placing the management of the Illinois Farmers' Institute in the hands of a board of directors, consisting of the State Superintendent of Public Instruction, the Professor of Agriculture of the University of Illinois, the President of the State Board of Agriculture, the President of the State Horticultural Society, the President of the State Dairymen's Association, and one member from each congressional district of the State, to be selected by the delegates, representing the County Farmers' Institutes, happily unites all the agencies of the State that are interested in the various departments of agriculture, and the education of farmers' sons and daughters.

The law creating the Illinois Farmers' Institute not only secures coöperation of the various State organizations designed by the General Assembly for service in promoting the interest of the dairymen, horticulturist, live stock breeders, the general farmer and others engaged in rural pursuits, but places the management in the hands of the farmer, directing the affairs of County Farmers' Institutes where it properly belongs.

It is fortunate for your enterprise that it can be conducted by the intelligent, conservative and progressive farmers of Illinois, who have placed the State in the front rank of the great States of this Union. In point of influence and wealth, placing its citizens on the highest plane of the best civilization of the age.

The motives which prompted the framing of the law are most commendable and the spirit manifested by the officers of the State and County Institutes in gathering together for the purpose of discussing practical methods likely to insure profitable results in rural husbandry and educational problems to be solved is deserving of all praise.

It was not my privilege to attend your last annual meeting, and my time has been so fully occupied since the publication of the State Institute report that its many good features have not been duly considered, and can not in this brief talk receive deserved attention.



GOVERNOR JOHN R. TANNER.

The report of your last annual meeting contains not only able and practical papers on nearly every phase of farm life, but gives evidence of the great activity on the part of the promoters of Farmers' Institutes in completing county organizations in all sections of the State, thereby bringing the ample advantages of the Institute in all its phases to every door-step of the farmers' home.

There should be no unnecessary delay in the completion of a Farmers' Institute in each county of the State, having for its object the principle named in the first line of the act creating the Illinois Farmers' Institute, namely: "To assist and encourage useful education among the farmers, and for developing the agricultural resources of the State."

The farm home is responsible, to a great extent, for the cultured and ready citizenship of our commonwealth, and why should it not bring into its sacred precincts every element of strength, mental and moral, as well as physical?

The programme you have arranged for the session can not but interest and benefit the farmers of the State, and it will give me great pleasure to attend your meetings as public business will permit.

I am glad to see in your programme a session set apart to the professors of our State Agricultural College, and another session to the farmers' wives and daughters who are certainly deserving of our highest consideration, and whose voices, I am pleased to learn, are frequently heard at your State and County Institutes.

In the now obsolete view of women as once considered, we have come to recognize that she forms a great factor in every work of importance. This is as it should be. The woman on the farm fills a position ranking equally with the one who leads in the literary club of the city. The phase of work done by each may differ in kind, but results may not be of less value.

My private interests in farming are such that my sympathies are with the producing classes, and it is my purpose in the discharge of the duties of the high office to which you have called me, to aid in the promotion of all agencies organized for the purpose of developing all the industries of the State.

It would have given me much pleasure, had time permitted, to consider the work of State and County Institutes, and to address you more at length on matters in which we have a mutual interest.

The members of the House of Representatives in granting the use of this hall during the session of the General Assembly, graciously recognize the importance of your coming together, and I am sure that the State officials will esteem it a privilege to aid in making this meeting pleasant and beneficial to the farmers and their families while in attendance at the second annual meeting of the Illinois Farmers' Institute.

In closing, I beg leave to assure you of a hearty welcome to the State Capital, and to wish for the farmers of Illinois bountiful harvests and remunerative prices for their crops, with a continuation of that spirit of enterprise that has placed Illinois in the front line in all that conduces to the prosperity and happiness of a great people.

The President: The Farmers' Institute workers of the State are always pleased to meet and listen to Hon. Charles Bogardus, who has so successfully conducted the legislation of the Illinois Farmers' Institute in our State Senate. It is a well merited compliment on the part of the committee who designated Senator Bogardus to respond to the excellent address of welcome just delivered by Governor Tanner. Ladies and gentlemen, I now present Senator Bogardus. (Prolonged applause).

Mr. President, Governor Tanner, Ladies and Gentlemen:

I am asked to respond on behalf of the Farmers' Institute of the State of Illinois to the very cordial welcome of the Governor of our State to the Capitol. A welcome which means much, a welcome from an official who represents four and a half millions of people; a welcome from a man whose heart, sympathy and personal interests are with us; one who has come as near mastering, not only the science of farming, but of horticulture, probably, as any man present; a welcome from one who has paid some attention to politics, and a good deal of attention to his home farm in Southern Illinois, where years ago he put out and now has growing 5,000 apple trees, embracing the finest varieties known to man since Mother Eve's apple experience in the Garden of Eden.

I grew up in the heart of the great fruit section of Western New York; have given much time and attention to apple growing, and really thought I knew something about it, but after having had several talks with the Governor on the subject, I bow to his Excellency and admit that I am a novice in comparison. He can name any apple grown in this State and nearly any tree from its habits and general appearance. I can not do this, and the men are rare indeed who can. Some of the finest apples I ever saw or tasted grew upon his home farm, on trees of his own setting. If you are ever at the Mansion, modestly hint (I do every time I am there) that you have heard a good deal about his apples. He will at once invite you to try his beautiful "Red Johnathans" that would make a maiden's cheek blush with envy, or a handsome yellow—and rightly named—"Grime's Golden" that you could almost imagine from its color was a veritable nugget of gold, or some other variety.

We have come together as a State Institute. Why do we have these institutes? Because with our rapid increase in population change in the modes of handling our lands become necessary. Look at Western New York. Fifty years ago they raised the finest wheat in the world, and in such quantities that Rochester was known as the "Flour City." How is it to-day? But a small per cent of those great wheat fields now ever see a grain of wheat. The density of population created a market for more valuable products, and the former great wheat fields have become orchards, fruit gardens, and what we would call "truck patches." What would an Illinois farmer think to go over one of their farms and find no wheat, no oats, perhaps three or four acres of corn, carefully cultivated and hoed, and the balance in orchard, small fruits, turnips, onions, potatoes, carrots, melons, etc., by the ear load for shipment to nearby cities. We are rapidly moving in a similar direction. I refer to a few thoughts in this line, only back, I think, to 1882. We were the greatest wheat producing State in the Union, with 55,000,000 millions of bushels to our credit that year. Indiana second with 45,000,000. Soon after we led with oats, raising one-fifth of the total crop of the United States for that year. We formerly led with cattle and hogs. In all of these things we are dropping behind except corn in which Iowa and Illinois were close contestants. Why? Because Chicago, a great empire of itself on our northern border, with the rapid increase of its population and of the country adjacent, great markets are opened up, and men like the Governor have learned that the profit on an acre of orchard is oftentimes equal to the profit on his neighbor's whole grain farm.

Canning factories are springing up and creameries all over our State, and in such localities farmers are learning that when they can sell tomatoes, sweet corn or any other vegetable by the ton, it beats Indian corn or any other farm crop; that there is more profit in a cow, rightly handled, than in 4 or 5 acres of corn. The same is as true of poultry. I know a man in Henry county who lives contentedly upon his 40 acre farm, giving his attention to poultry and a few cows, and instead of the laborious work attendant on a corn crop from the time it is planted until marketed—sometimes covering a year's time—he rides to town in a spring wagon with his choice butter, for which the hotels and private families are ready to give him an extra price—and the fresh eggs worth 22½ cents in this city to-day are sold the moment he arrives. Suppose we think for a moment how much corn it takes to produce



HON. CHARLES BOGARDUS.

a dozen eggs and compare their values. He always has a large quantity of early chickens when they are most valuable. Turkeys as fine as you ever saw and bringing him a handsome sum of money. He is in the vicinity of large farms—one of 1,200 acres adjoining; one of 1,800 near by; another of up in the thousands not far away; I oft times think when I see this man and his little farm, that they are object lessons we could study with great profit. Hence the value of our institutes, and the great work they accomplish. They bring us together that we may compare, as in this case, the experience of a whole State, and the best methods of making our lands produce the greatest and most profitable results. The value of these gatherings can not be overestimated. I have been deeply interested in institute work for years and know we can all learn much from them. No farmer can more profitably employ his time during the winter months than by attending the institute of his own and adjoining counties, and State Institutes also.

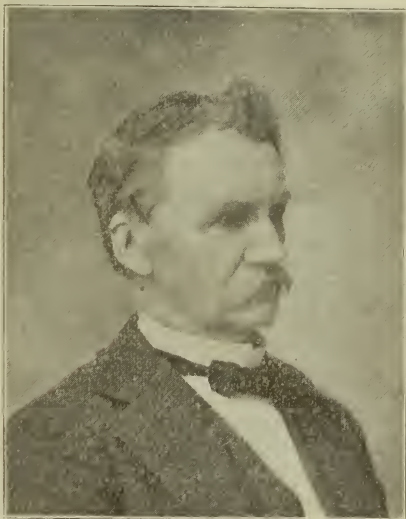
Mr. Chairman, pardon me for digressing somewhat from the duty assigned me, but my deep interest is my apology.

Again, Governor Tanner, I thank you upon behalf of these friends and myself, for your kind, generous and hearty welcome.

The President: The next topic on the programme is an address on "Corn Culture and its Commercial Products," by Mr. E. S. Fursman, of El Paso. I take pleasure in presenting Mr. Fursman, who is a practical and successful corn grower.

Mr. Fursman gave his method of selecting seed corn, preparing the soil, planting, cultivation and harvesting the crop, and by charts illustrated the advantages of using good seed, thorough cultivation, etc.

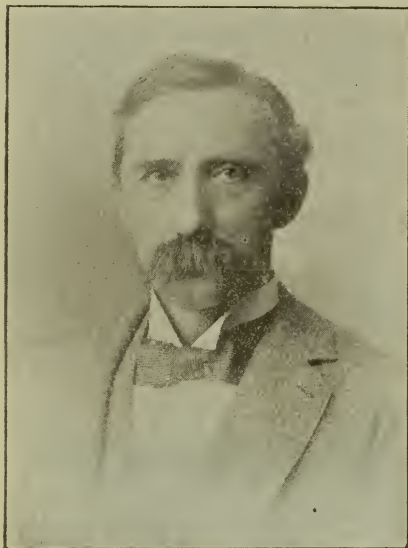
Mr. Fursman presented the subject in a very interesting and instructive manner, and it is much regretted that he has not found time to prepare for publication the full text of his remarks.



E. S. FURSMAN, El Paso, Ill.

The next topic on the programme "Clover Culture in Illinois," by Prof. Joseph Carter, of Champaign, Illinois, was ably handled and the address was well received. The remarks of Prof. Carter would have added much to the value of this report and it is unfortunate that the gentleman has not been able to find time to prepare the manuscript of his interesting and practical address for this report.

The next topic on the programme was an address on "Agricultural Methods with Farm Insects," by Prof. S. A. Forbes, State Entomologist, who prepared the following paper for the occasion:



PROF. S. A. FORBES.

FARMERS' METHODS FOR FARM INSECTS.

I wish in the first place to lay down a general principle concerning methods of contest with the insect pests of agriculture, which, if clearly understood and intelligently carried out, will, in my judgment, go farther to protect our farm crops from injury by insects than any other one thing. Measures against insect injury may be divided into the two classes of remedies and preventives. By remedies I mean those measures taken to preserve a crop already attacked; by preventives I mean those taken in advance to prevent insect attack or to lessen the amount of injury which it is likely to occasion. The general principle which I wish to establish is this: In the agriculture of these interior states remedies are commonly of little or no value, and, consequently, in this region we must depend for protection against the insect enemies of the farm almost wholly on measures of prevention.

We must distinguish in this respect between horticulture and agriculture, and between the intensive agriculture of an old and thickly settled country and the extensive agriculture of a region like these central states. The fruit-grower or truck-farmer can often use remedies to very good advantage and with considerable resulting profit which would be economic absurdities as applied to field crops; and the English or the Continental farmer can profitably apply to the more valuable product of his small and highly cultivated fields measures for the destruction of insects the cost of which to us would eat up our profits faster than do the insects themselves.

When an Illinois farm crop is visibly and seriously attacked by injurious insects it is almost always too late to save it, and yet in nine cases out of ten, or even in a much larger proportion, the inquiries concerning insect injury and appeals for aid which come to my office relate to just these hopeless cases. The time to consider methods for the destruction of the cut-worms, wire-worms, and white grubs which are likely to attack and even destroy a field of corn planted on the sod of an old pasture or meadow, is before the farmer begins to plow the ground. If the chinch-bug appears in your wheat in destructive numbers, there is little use in asking what to do to save your wheat, for it is probably too late to do anything. That is the time to inquire what measures should be taken to prevent these pests from extending their ravages to the field of corn beside the wheat.

I repeat, then, that the Illinois farmer must for a long time look to measures of prevention rather than to remedies for protection against the great farm pests. Now, preventive measures require for their most successful use, accumulated knowledge, the habit of observation, and individual foresight. The farmer must know or be able to learn what to expect from time to time in the way of insect injuries as affecting each crop and as affected in turn by each method of farm management. It will help him greatly if he can also recognize the earliest symptoms of approaching trouble, and he must, of course, habitually look forward and make use of his preventive measures

while there is yet time to give them full effect. If he does not have this personal knowledge and does not use this individual foresight, the best that he can do is to adopt some regular routine of agricultural management adapted to the average conditions of his region and calculated also to prevent the principal injuries by insects to which his crops are liable.

I would like now to ask your attention to the description of some of the general features of such a farm routine and some of the special methods for the prevention of insect injuries which apply to the agriculture of this county.

In the first place I should say that preventive measures such as I have referred to are very largely methods of farm management. They merely involve the choice of special ways and times of doing things which the farmer must do at any rate in some way and at some time, and they are consequently quite within his reach and wholly under his control. Take, for example, the prevention of injury to corn by cut-worms. These insects are the caterpillars of a considerable number of different kinds of grayish or brownish moths of various shapes and color patterns, which fortunately agree, generally speaking, in one important point of their life history. These moths lay the eggs from which the young cut-worms hatch in grass lands in the latter part of the summer and early in fall. The young hatch the same year and depend upon the grass about them for subsistence until the winter cold makes food unnecessary to them. From this it follows that if the pasture or meadow land be plowed very early—the sooner after harvest the better—the female cut-worm moth, flying about in search of a suitable place of deposit for her eggs, will find no temptation to plant them on this bare plowed ground, but will go elsewhere in search of growing vegetation. It is of course necessary to this end that the ground should be so plowed, and perhaps subsequently so treated, as to kill and keep down grass and other vegetation until the cut-worm moths have laid all their eggs. Even if this treatment of the sod be not commenced until after many of the eggs of the moths have been deposited in the grass, it may still serve the purpose by destroying the food of the young caterpillars before they have reached a stage of growth sufficient to enable them to pass the winter successfully. From this it will be seen that a mere intelligent selection of the time of breaking grass lands may almost wholly or even completely prevent cut-worm injury to the crop of corn upon these lands the following year. Now, this procedure will have no marked effect, however, upon the two other chief insect enemies of the corn farmer raising corn on sod, namely, the wire-worms and the white grubs. Both these classes of insects live in the soil, upon the roots of the grass, but even if this be killed somewhat early in the season the grubs and wire-worms can easily sustain themselves, even without food, until the planting of the corn the following year enables them to break their fast.

Concerning these immemorial and hitherto most unmanageable enemies of the cereal crops in Illinois, I have to propose a different procedure; one which must take effect not only upon them but also upon the cut-worms already spoken of. It has long seemed to me that the favorite and customary crop rotation of central Illinois has been settled upon without sufficient reference, if, indeed, with any at all, to the agricultural entomology of the region. Corn, small grain and grass, which commonly succeed each other on your fields, belong to the same botanical family, the great family of the grasses, and they are infested to a very great extent by the same insect enemies. They consequently give a rotation, which however well adapted to the needs of the soil, is no rotation at all so far as injurious insects are concerned. From the entomological point of view, the agricultural practice of this county would certainly be greatly improved if some other plant, not a grass, were regularly brought into the rotation. After considerable consultation with my agricultural friends, including not only professors of agriculture but also several of the most successful farmers of my acquaintance, I have decided to urge upon you from my own standpoint as an economic entomologist a systematic rotation of corn, small grain and clover in repeated succession, with grass left out of this regular series.

The permanent meadows and pastures, being thus outside this rotation for the cereal crops, could lie in grass as long as profitable and desirable. As they would, however, thus become, in time, mere breeding beds of all the

root-feeding grass insects, it would be necessary that they should be broken up occasionally and planted to corn, but it would in such case be very important that clover or some similar plant, the cow pea, for example, should be inserted before the corn, to stand for at least two successive years. By this time wire-worms and white grubs would be well out of the ground and the corn would consequently be but little liable to injury.

I am told that these rotations, resting as they do with me on entomological grounds alone, would be highly advantageous also for general agricultural reasons; that they would, indeed, constitute a marked improvement on the current method of this district. The facts with regard to this matter may, I hope, be brought out in the discussion of this topic.

The greatest entomological disaster to which the farmers of Illinois are liable is an outbreak of the chinch-bug such as is now possibly impending in this county for this next year. Without going at length or in any detail into the vexed and complicated question of the relation of wheat culture to the chinch-bug, I can certainly say that it is generally unwise for the farmer to sow in the presence of an uprising of this insect any more wheat than he can afford to lose, or any more than he can afford to systematically supervise in such a manner as to prevent the escape of such chinch-bugs as may breed in it to adjacent fields of oats and corn. The crops of the year should be so selected and arranged as to concentrate the chinch-bugs as closely as possible in wheat or rye, and facilitate their destruction as they attempt to escape from these fields as the grain ripens and dries out. The very best place to fight the chinch-bug is between a field of wheat and a field of corn adjoining; and the period of wheat harvest is of course the time that should be set for the contest. I presume that you all know of the harvest-time movement of the chinch-bug on foot from fields of wheat or rye, in which it was bred, to adjacent fields which may still afford it food, and I think that you must have read or heard or seen something also of the methods coming into use for arresting this movement of escape and invasion by means of barriers constructed across their line of travel and for trapping and destroying them at these barriers while they are attempting to escape. The time for scepticism concerning the possibility of destroying the chinch-bug in this way *en masse*, at a relatively small expense, has now quite gone by. This has now been done so efficiently and so frequently and on so large a scale in various parts of the State and under the most various circumstances, and the general practice of this method in any district would so rapidly break the force of the worst attacks, that I know of no greater service that can now be done to agriculture in this region than to make the facts generally known, and to demonstrate the efficiency of this method of contest with these insects.

I will not attempt to give you now the details of a complete procedure, unless this may be called for in the discussion of this paper. But methods of defense and destruction must vary according to weather conditions at the time.

If the weather is very hot and very dry, the well known dusty furrow along the edge of the field, kept in good condition by dragging a heavy log back and forth from time to time, is all that is necessary. If the ground becomes damp with heavy dews or showers, post holes must be sunk at intervals in such a furrow to collect the escaping chinch-bugs, where they can be killed by sprinkling with kerosene.

If the ground becomes too wet for the furrow method, a zigzag line of coal tar poured from the nozzle of a sprinkling pot must be substituted for the furrow, with post holes or cans or jars sunk in the angles of the line to trap the bugs as they pass up and down in search of means of escape. If the bugs get access to the outer rows of a field of corn, they must be killed by using kerosene emulsion diluted to contain about 5 per cent. of kerosene.

A gallon of coal tar will make a line thirty rods long at a cost of ten to fifteen cents if bought by the barrel. The materials for completely destroying the chinch-bugs on an acre of corn along the edge of a field so heavily infested as to fairly blacken the corn will cost, for soap and kerosene, between sixty-five and seventy cents, and the labor required for the destruction of all the bugs on corn so heavily infested will be that of one man per acre for one day. If the insects are less numerous one man may thoroughly destroy them over two or three acres in a day.

We used these methods in southern Illinois two years ago for the destruction of chinch-bugs coming out of a twenty-acre field of wheat which they had practically destroyed, and from which they were making their way into a field of corn adjoining. Over twelve bushels of bugs were thus destroyed, and the corn was saved from any important injury at the time at an expense, all told, of less than \$5. The situation selected was a very difficult one and we had, during the progress of the experiment, about all the varieties of summer weather to which we are subject, including both light showers and soaking rain.

If there is no other way in which these midsummer measures may be brought generally and rapidly into use, I am decidedly of the opinion that it would be greatly to the public interest if authority should be given by law, to extend over a limited number of years, for the payment of bounties of, say, fifty cents a bushel for dead chinch-bugs collected in Illinois in June and July. A bushel of them at harvest time contains, according to our count of a measured quantity, about eight million bugs, and we have determined by careful experiment that the chinch-bug breeds at a rate of one hundred to one hundred and twenty-five to one. If we suppose that the average rate of multiplication be only fifty to one instead, then, as about half the bugs are females, a bushel of them escaping from the wheat would give origin the same year to twenty-five bushels in the corn. That is to say, an expenditure of fifty cents a bushel paid at harvest time would be practically the same as a cost of two cents a bushel for the destruction of bugs in the corn, or a rate of four million bugs for a cent. If there is any way in which the money of the State could be more profitably invested I have yet to hear of it. On the other hand, the bonus proposed would be so nearly a complete return of the expense incurred, leaving the benefit to the individual farmer as a profit, that it would serve as a very efficient stimulus to active and thorough-going work, at least wherever the bugs were excessively abundant. As it is at present, for lack of definite knowledge, confidence, and persistence, millions of dollars are lost in a single year to the agriculture of the State which might be saved at the expenditure of a few hundreds only.

But at any rate, if, without waiting for other encouragement or inducement than that to be drawn from demonstrated facts, the farmers of any badly infested neighborhood will combine for an energetic, persistent campaign against this enemy at harvest time, they can protect themselves against the greater part of the damage to which they are immediately liable, and at the same time can greatly diminish the chances of a serious attack the following year.

It will be seen that the principal measures recommended in this paper are the summer or early fall plowing of old sod which is to be planted to corn, as a precaution against cut-worm injury to that crop; a general rotation of corn, small grain and clover, with grass omitted from this regular series as a preventive against loss from cut-worms, wire-worms and white grubs; (a frequent change of corn ground to some other crop to prevent injuries by the corn root worm and the corn root aphid;) and a persistent, intelligent fight at harvest time, by all whose small grain has bred the chinch-bug, intended to destroy that worst of the pests of agriculture as it attempts to escape from the fields in which it can no longer find food.

The President: The Institute will now adjourn until 7:30 o'clock in this hall.

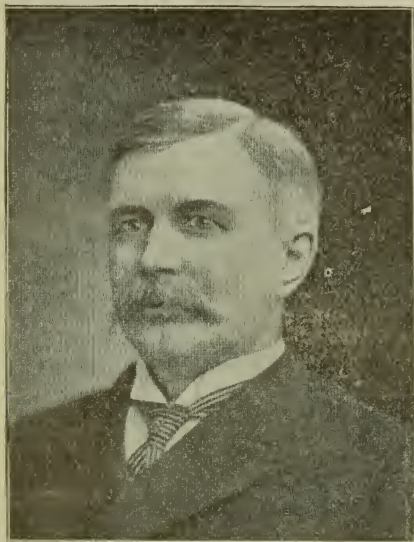
EVENING SESSION, 7:30 O'CLOCK.

The President: Ladies and Gentlemen.—This session has been set apart to the faculty of our State Agricultural College by our program committee. We are all deeply interested in all that pertains to the State Agricultural College and it is fitting that the honored president of the University of Illinois should preside at this meeting. It gives me great pleasure to introduce Hon. A. S. Draper, President of the University, who has kindly consented to act as the chairman of this evening session.

President Draper, on assuming the chair, was greeted with hearty applause and spoke as follows:

PRESIDENT DRAPER'S ADDRESS.

Ladies and Gentlemen.—It is a very safe and wise rule, I suppose, that the presiding officer should preside and not indulge in speech making. And yet, I surmise, that under the circumstances, with the understanding that I shall adhere quite closely to this rule, you will not begrudge me a very few moments in which to say a word touching the State University and its relations to the great interests for which this convention has assembled.



A. S. DRAPER.

The interest of this great central State and of the newer western states in advanced education is proverbial throughout the country. From the very beginning the people who settled these states have done all in their power and given cheerfully to build up the best educational facilities. It is not at all strange that it should be so. They found guarantees for education and all the assurances of our later constitutional civilization in the original charter. They accepted the congressional enactment which created territories and afterwards states upon the understanding that they should do all that they could to propagate religion and culture. More than that, a progressive people always lives in the future. They sacrifice present advantages for future prospects. They are always jealous of advantages that will help their children. And so the sturdy,

hardy, pioneering people who developed these great central states gave cheerfully at the beginning, and they have never ceased to give cheerfully, in order to build up public improvements.

This feeling led the people of these states to erect educational institutions.

The states all about us not only started an elementary school system at the beginning, but at a very early day organized a system of Normal schools and of State universities.

Illinois was a little slow in the matter of organizing her State University for reasons which you, doubtless, understand. Other states around us had all established a state university long before the State University was established in this State. It takes age and experience to make a great, higher educational institution. And the states about us have had a very decided advantage from the fact that they established their universities so early.

Indiana separated her work into two institutions. The University of Michigan has 3,000 students; Wisconsin, 1,800; Minnesota, 2,500. These figures are significant, and they are indicative of the decided stand which has been taken by all of these great central states upon the subject of higher education.

The State of Illinois delayed the organization of her State university until her great soldier legions returned from the heroic struggle to save the Union. The energy which was brought back into this State by the grand army of the Union was sufficient to lead the State to seize upon the Federal grant for the purpose of establishing a State university contained in the congressional enactment which became the corner stone of the university of this State.

That law had two or three distinct purposes in view. In the first place it had in its mind the training of the young men for service in the army and navy in case of war. Happily, no occasion has arisen to put this training to the test.

It also proposed to bring college instruction to the homes of the masses of the people. The old colleges had all led to the old time, learned professions, theology, medicine and law. The newer congressional enactment, which pledged the Federal Union to the help of the college, had in mind the training of artisans, mechanics and wage-earners to a higher grade of culture, and therefore it was provided in this congressional enactment that agriculture and the mechanical arts should have special attention in all institutions founded upon this grant.

The State has done very much more than avail itself of the congressional enactment and the gift of the Federal Government. It has undertaken to build up a great university, which should hold out instruction in any line that any son or daughter of Illinois could desire. In addition to making agricultural and mechanical pursuits objects of pursuit in this university it has provided for training the young men and women of the State to any of the vocations which they may like to enter.

Under the stimulus of this congressional enactment college education throughout the country and throughout the world has been revolutionized.

In the older institutions, a stereotyped course was laid down. Young men and only young men went to college then. They were expected to take the classical course; there was no alternative. Now, they sit down and study the scores of courses in the catalogue to help decide in which department their talent will have greater scope and for what work they are best adapted.

And again, the old system of instruction was merely cataphetical. In old times the college student was asked questions in the class room and he undertook to answer out of books. Now, the college supplies opportunities of putting these theories into practice. He now does in the laboratories what he formerly read about in books. And we all of us are old enough to know the wide difference between merely talking about a thing and the actual doing of it. Accordingly, the expense of college education has been much enlarged.

It is the desire of the State University in this State to be particularly servicable to those great interests which are represented in this convention. I have not the time and you would not permit me to take the time to dwell at length, as I would be glad to do under other circumstances, on the relations existing between the University and the Illinois Farmers' Institute.

But, I beg your time just for a moment or two, to speak of the relations which the University would be glad to maintain with the farmers of the State, and then I will relieve your patience.

It was the State University in the State of Illinois, which first originated the Farmers' Institute in this country. If there is any way of keeping men engaged in farming, alert and active and interested in it, it is through their coming together in assemblages. Some people think that very little good has been accomplished by these institutes. It is easier to criticise than it is to build up. As much has been said of the Farmers' Institutes, I have no doubt, before now. But, the fact remains, I think, that no one has yet suggested, and no one will suggest any system which will go farther towards agricultural agitation and progress, than the modern Farmers' Institute.

The University has no desire to stand in any relation to the Farmers' Institute, other than a helpful relationship to them.

It is due to the University that I should say that we are somewhat embarrassed by the demands that are made upon us, from the County Farmers' Institutes for attendance and help.

It not unfrequently happens that a dozen Farmers' Institutes are held upon the same day in the same week and that we have calls from as many for assistance. All the assistance that we can give, has to be given through our regular professors, and our professors are much occupied at home. The

most we can possibly do is by changing and rearranging our affairs at home and even then the home work suffers. The result is that when there are a dozen held in the same week and we are compelled to remain away from most of them, they think we are indifferent about their interests and welfare.

As I said a moment ago, all that the University desires about this matter is to be helpful. We would be glad to be represented in every one of these gatherings. We hope our aid would be acceptable. And we know the aid you would give to the University professors would be helpful to them. Farther than that we have no wish in the matter. We have no care to control or direct the money matters in any way. Indeed the less of that for the University, the better.

And it seems to me that out of the wisdom of the progressive agriculturists of this State, there might be a system devised which would enable the University to be represented at a much larger number of the institutes, and at the same time, enable the institutes, through the presence of the representatives of the University, to indicate to us more thoroughly, what we can do to promote their interest.

I have been led to make these remarks because some things that have come to me touching a proposed plan, charging the University with the supervision of the County Institutes. And it has seemed to me that it would be well for the University to say frankly what its position and desire is about the matter. I have never, to put it frankly, been cognizant of any desire of the University to control the Farmers' Institute, and that is all there is of it.

Begging your pardon for occupying so much time, I have pleasure in taking up the program of the evening and in presenting to you, Prof. S. A. Forbes, State Entomologist and Dean of our College of Science, whose topic for to-night is "Entomological Work at the University."

The Chairman: The next order on your program is an address on the "Entomological Work at the University" by Prof. S. A. Forbes who will now address the Institute.

Prof. S. A. Forbes then read the following paper on the "Entomological Work at the University:"

The world of insects must be regarded as the most important group of undomesticated animals now inhabiting the civilized regions of the globe, and the only considerable group of which man has as yet failed to get substantial control. The native mammals of this country, for example, are practically exterminated, the magnificent herds of bison, elk and deer, the bears, foxes and otters, the packs of wolves, the badgers, the beavers, and the squirrels, are all gone or very nearly so, and this great mammalian class is represented chiefly by the rabbit and the bats, and a scattering remnant of subterranean or semi-subterranean ground squirrels, gophers and moles.

The birds we have ever cared to kill are now practically all killed, only a timid handful remaining here and there, preserved by law under heavy penalties as material for so-called sport; and many kinds which we ought to preserve in our own interest if not in theirs, are threatened with speedy extinction.

Reptiles and amphibians we have destroyed so far as we wished to do so; and we are obliged to restrain ourselves and each other by stringent legal restrictions, enforced by a corps of special officers, to partially preserve the fishes of our lakes and streams from a similar fate. If many kinds of lower animals, aquatic and terrestrial, survive in numbers yet undiminished, it is because we are generally ignorant of them or, at any rate, regard them with indifference. We probably could have killed them off, and doubtless would have done so, if there had been either pleasure or profit to us in the killing.

But the insect class defies us, and holds its own in spite of us, and multiplies all the more rapidly, on the whole, and possesses the earth none the less securely because of us. We have never exterminated anywhere a single insect species, and probably we never shall. Reasons for their wonderfully successful career are to be found in part in their small size and their prolific rate of multiplication, which enable them to subsist, sparsely distributed,

where there is but little food, and yet to occupy any particularly favorable area promptly with an enormous population, and which make it extremely difficult to destroy them effectually; and in part in their unexampled powers of locomotion, by means of which they can easily disperse themselves to all quarters of the globe, and can escape readily from unfavorable conditions in one locality and search out the most favorable in some far distant place. They have also a very unusual flexibility of structure and of habit, by virtue of which they may become adapted to almost any situation capable of sustaining animal life; and their mere abundance gives them an immense advantage in the struggle for existence with any other animal, as men know too well. "Small as they are," says Professor Sharpe, of Cambridge, "it is probably true that by far the greater part of the animal matter found on the land surface of the globe is locked up in their little forms."

This predominance, I need hardly say, is not a thing of recent origin. Insects have been an important factor in the life of the globe for many millions of years, exercising proprietary rights over the vegetable kingdom long before humankind were even indefinitely foreshadowed. We congratulate ourselves upon the wonderful improvements which we have effected in the varieties of plants which immediately interest us, but these are as nothing to the improvements in their own interest which insects brought about ages ago in the structure and behavior of the plants upon which they depend for food. They have made all the flowers of the earth. For them the plant secretes its nectar and sheds its odors upon every breeze. Without them multitudes of vegetable species would presently become extinct from insufficient fertilization. Nearly the whole vegetable world has been profoundly modified with reference to them, sometimes inviting, sometimes repelling, their visits; commonly offering them a tribute in the form of a surplus growth for their sustenance; often arming itself with defensive devices against their injuries.

Furthermore, it is they who have made the greater part of all the most beautiful and musical bird life possible. Our native birds, of brilliant plumage and delightful song, are nearly all insectivorous or largely so, and could not possibly maintain themselves if they were not. Most of our fresh-water fishes also, at least *pass through* an insectivorous stage, and how they would ever get through it if it were not for insects it is impossible to see. Indeed, if we may call man the head of the system of animal life, certainly we must call insects the heart and center of it.

To the student of zoölogical science, in whatever department of it his main interest lies, there is no field so rich as that of entomology. If he likes to discover and to study species, he may congratulate himself that, according to very conservative estimates, two and a quarter millions of insect species still remain for him, unnamed and undescribed—ten times as many as have hitherto been published by all the entomologists that have ever lived. If he is a comparative anatomist, he, and hundreds like him, will find life too short to make more than a mere beginning in the task of unraveling the variations and complexities of insect structure. If he is an embryologist, he knows that only a bare beginning has yet been made in the serious study of *insect* embryology. The general evolutionist may almost be said to avoid the entomological field, as the traveler avoids a tropical jungle, because of the bewildering thicket of entangling problems which present themselves for his solution whichever way he turns his eyes; and the entomological oölogist—the entomologist, that is, who studies insects as living beings in the midst of nature, who tries to make out how they act upon the outer world and how the outer world reacts on them in turn; he who studies life histories and interactions and adaptations, and the general system of causes and effects in this great field of life—has, perhaps, the most difficult and responsible task of all; the most difficult, because his work requires, not observation and reflection merely, but precise experiment also at every step, and experiment with variable materials at that; and the most responsible, because in addition to the grave responsibilities for thoroughness and accuracy, and judgment and impartial truthfulness under which he rests as a scientific man, it is he who bears the further responsibility for the progress of knowledge and its practical application in the field of economic entomology.

It would take me hours to do completely what I have tried to do in brief, namely, to bring forward significant facts and general considerations which may serve to get out of my way any lingering remnant of a very common but very narrow and really ignorant prejudice against the insect bug as a disagreeable and insignificant creature, unworthy of any more attention from an intelligent man than its offensive characters and destructive propensities compel from him. This prejudice, as one often meets it, is not only ridiculous in itself, but it hurts the very class most likely to indulge in it; that is, those who have certain justification for it in the annoyances and losses from insect injury which they are compelled to suffer; and it hurts this class by discouraging in the young the idea of the serious study of insects as a worthy intellectual occupation. The more scientific entomologists there are the more economic entomologists there will be, and the more thoroughly scientific will be their economic entomology. It is strictly true that the farmer who ridicules the young entomological enthusiast as a "crank" or a "bug-catcher" helps to give the chinch-bug a prolonged lease of life. It is because of this close interdependence between scientific and economic entomology that I have thought it legitimate and profitable to lay before you some brief statement of the scientific as well as the economic work in this field now organized and going on in Illinois. Agricultural chemistry is not more dependent upon chemistry, I might also say, than the hand is not more dependent upon the head, or the tree upon the soil in which it grows, than economic entomology is dependent for its spirit, its ideals, its standards and its methods on general entomological science. The young economic entomologist of the present day is not nearly so hard hit by the criticism of Mr. Smith, the farmer, who is likely to say of him that his work is not practical, as he is by that of Professor Smith, the experiment station entomologist, who says of his work that it is not scientific. And this is the correct view to take. If the work is not scientific, its foundations are crumbling and its substance is rotten, and the whole structure must be rebuilt, largely with new materials. If it is scientific but not practical, that means, at the worst, that it is incomplete for its purpose. A more practical man, or the same man with more practical experience, may utilize it all without serious loss.

With this rather long introduction, about as long, indeed, as the thing it introduces, I turn to my special topic of this evening, that of entomology at the University of Illinois.

The University has had an extraordinary opportunity to establish and build up a large and influential department of entomology, and of recent years at least it has done all reasonably possible to it to improve this exceptional opportunity. It now has, either in it or intimately associated with it, five entomological establishments, offices or departments, all under one general management, and so interlocked and organized that they are not only mutually helpful, but to a very great extent, mutually dependent also.

The office of the State Entomologist of Illinois, founded by law thirty years ago this winter, was established at the University twelve years since by transfer from Normal. It is the function of that officer, in the language of the law, to investigate the entomology of the State of Illinois, and particularly to study the history of the insects injurious to the products of the horticulturist and agriculturist of the State. He is also required to form a collection of insects to be deposited at the University.

The State Laboratory of Natural History, whose work is very largely that of an entomological survey of the State, and whose director has been the State Entomologist for fifteen years, went to the University with the Entomologist's office in 1885.

The State Agricultural Experiment Station, of which the official Entomologist of the State is the consulting entomologist also, offers almost boundless opportunity for economic field experiment both on its own premises and in other parts of the State.

The newly established aquatic Biological Station of the University on the Illinois river, at Havana, is carrying on an independent programme of entomological work, also under the direction of the official Entomologist, in

which the very important relations of the insect life of our waters to the culture and maintenance of both native and introduced fishes are kept prominently in view. The University department of entomological instruction, with its classes of students from the colleges of science and agriculture, is intimately related to the departments just mentioned, and very largely dependent upon them for instruction, for laboratory and library facilities, and for almost unexampled opportunities for field experience. The results of investigation in this department are published, usually with abundant illustration, in the biennial reports of the State Entomologist, in the bulletins of the State Laboratory, and in the bulletins of the Agricultural Experiment Station.

Taken together, we have thus formed one of the largest and most important departments of entomological study, research and publication to be found in this country, surpassed, indeed, by not many in the world. This department should be, however, much more useful than it is to science, to education and to the people of the State at large; and it is because I am sure that too little is known of it and of its present status, and that its value as an agent for the promotion of the public welfare might be greatly increased if it were better and more widely known, that I have thought it my duty to avail myself of the cordial invitation of your committee to present here to this representative audience a brief statement of the purposes, organization, and work of this department of investigation and instruction.

I will speak first of the department of university instruction. Six years ago only one term of entomology was offered to our students, and two years ago there were but two, and now there are ten terms open to them as undergraduates, with an indefinite amount of work additional which may be taken after graduation. All of these courses are what we call "full studies," that is the student spends on each three hours a day five days in the week. Two of these terms' work are elementary merely, one of the two being essentially scientific and the other strictly economic. The first is intended for students of science or literature who wish a minimum knowledge of entomology, and the second is adapted to the needs of the farmer's boy who expects to return to the farm. Both are open to any university student without conditions. Following upon these are two terms' work of general entomology, upon which the student enters with the preliminary advantage of considerable knowledge and training acquired in other courses. He comes out of this course competent to determine, to draw, and to describe insect species, and accomplished and experienced in the various operations of field, laboratory, literary and economic entomology. If he succeeds in this course, he should be well equipped for service as an assistant in a college department of instruction or in the entomological work of an agricultural experiment station. Beyond this lies, for those who choose it, an entire year of more advanced entomology, made up of special courses adapted to the objects and abilities of the individual, to be followed again, if desired, by another year of investigation work along some chosen line, which should result in a contribution to knowledge suitable for publication as such, and sufficient to accredit its author anywhere as a trained specialist in entomology. A capable and ambitious boy with marked preferences and abilities in this direction may thus get three years of connected work in entomology at the university, beginning with the rudiments of observation, and ending with the refinements of exact research, and while he is thus becoming an entomological specialist, we will see that the other studies of his course are such that he leaves us also a well educated man. We want a lot of such boys, and girls too, if they will come, and when we have put them through such courses we want to recommend the brightest and most industrious of them for places as college instructors and experiment station entomologists, and the like; and wherever they go we shall expect to hear from them to their credit and to ours. Even with the short courses and relatively scanty opportunities of the past, helped out as they have been by chances for experience and employment in the State Laboratory and the State Entomologist's office, we are not without representation in positions of importance throughout the country.

We have given to Kentucky, for example, its experiment station biologist and professor of entomology in its State College, as well as its assistant in the same department; to the University of California, its professor of ento-

mology and entomologist of its experiment station; to the Agricultural College of New Hampshire, its professor of biology and experiment station entomologist; to Ohio, its official entomologist at the experiment station and his assistant also; to the Agricultural College of Maryland, its professor of entomology and official entomologist of the state—and if we have not filled other equally important places, it is because we have not had successful graduates at our call as vacancies arose. We have had besides the advantage of the service of most of this list for longer or shorter periods in our own investigation and instruction work in the State Laboratory and in the University proper.

The entomological investigation work now in progress at the University runs mainly along two principal lines, although there is a large amount of such work incidentally done which will not appear in this statement. These two lines are the aquatic entomology of the State, studied mainly at our Biological Station, and its economic entomology, the investigation of which is pursued at the University itself, and wherever in the field the course of events and the necessities of experimentation call us. It may seem a strange statement to make, but still it is unquestionably true, that the work on the entomology of the Illinois River, begun by my first assistant, Mr. Hart, in the spring of 1894, and still in progress at my laboratory, was the first regular systematic study ever made of the insect inhabitants of the waters of this country; and our bulletin on that subject published last fall, giving the first results of this research, has been generally received by entomologists as the most important contribution hitherto published in that field. We have, indeed, at our Havana station, the only carefully planned and complete equipment for such work I know of in America, and certainly the only establishment where any such study is carried on continuously throughout the year. Like all our investigation work, in whatever department, the final end sought is not a knowledge of species merely, or a list of names or a mess of technical descriptions, but a precise and exhaustive knowledge of the place and action of each animal group in the general system of life of which it forms a part. We study living things as alive in their natural surroundings, and endeavor by observation and experiment to ascertain the laws and principles of the relationships between them and the outer world at large. This field of *oecology* necessarily includes nearly everything scientific relating to the life of a region, and absolutely everything economic. It is, indeed, from one point of view, economic zoölogy, with the broadest possible foundation in scientific research. From another point of view, it is scientific biology thoroughly worked out to its practical applications. From any point of view, scientific, educational or economic, it seems to me that it is the work in this field which a state university ought to do for the people of its state.

An identical spirit and method govern the economic work of the State Laboratory and the associated State Entomologist's office, the emphasis merely being somewhat differently placed. In this field of agricultural and horticultural entomology we have from time to time selected specialties which we have largely made our own in the progress of this subject in America. Just now our special line of research on the agricultural side is insect injuries to Indian corn, the particular part of it upon which we are at present at work being injuries to the stalk and leaf. An exhaustive monograph on such injuries to the planted seed and roots was published in my official report in 1894, and in briefer form last year as Bulletin 44 of the Experiment Station.

On the horticultural side, our leading line is insect injuries to the farm orchard and to nursery stock. In this field comes our recent work in the discovery and location of that dreaded pest lately admitted to our borders, the San José scale.

Similar exhaustive studies have been made in the past; sometimes of special insects followed year by year until final conclusions were reached, and sometimes of groups infesting special crops. In this way we worked out years ago the life history of the corn-root worm, establishing on a scientific foundation, by the discovery of the eggs and breeding habits of the pest, a method of rotation as a complete protection against it. By similar continuous studies we made out for the first time the seasonal history of our American white grubs,

modifying thus the current views of entomologists, and changing to a considerable extent economic methods applicable to these species. A very great amount of work, involving difficult and careful experimentation, went not long ago to the unraveling of the life history of the corn-root aphid, and scarcely less to a precise determination of the midsummer history of the Hessian fly, both researches resulting in an improvement of economic methods quite within the control of the average farmer.

It was on the University premises in 1887 that the first precise experiments were tried with arsenical sprays for the codling moth, brought to the test by methods which have since been generally adopted in such work.

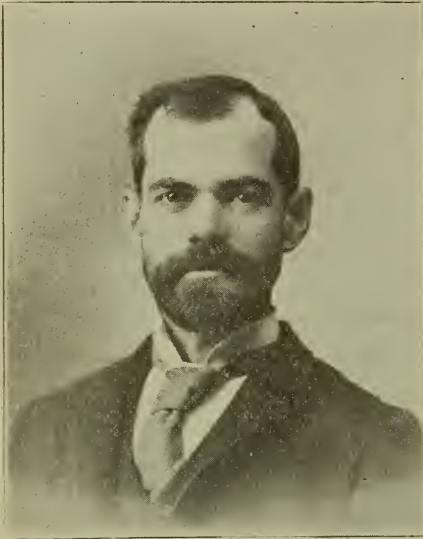
In one of the earlier reports of the entomological office appears the first general and exhaustive treatise on the strawberry insects, and indeed the fullest published even yet. On the exceedingly difficult and highly important subject of the native contagious diseases of insects and their practical application, the State Laboratory has done far more work than any other American establishment, more indeed than all others put together. The practical results are as yet, I regret to say, of no very definite value, except as negative results are valuable; but still the subject is scarcely more than begun, and what may come out of it finally no one can possibly foresee. Just now we are engaged in the study of a new fungus disease of the San José scale, material for which came to me last week from Florida; and upon another presumed disease of the same destructive insect, illustrated by several lots of specimens sent me from California at about the same time.

Our work on the chinch-bug began fifteen years ago, and will continue, I assure you, according to our time and opportunities, until one or the other of the parties is worn out. Just now, as I intimated to you this afternoon, the most serious obstacle to practical progress in this matter seems to me to lie in the apathetic hopelessness of the farmer rather than in the obstinacy or ingenuity of the insect pest. If we can by any means induce the general use of measures whose utility has been demonstrated by actual experience in the field, a great advantage will certainly be gained. I think we have something to hope in this direction from the appearance of chinch-bug outbreaks in portions of the State not commonly injured by it. In some parts of Illinois it has come to be regarded as a standing and inevitable feature of the agricultural situation. The disease has become chronic. It is like an encysted bullet in an old wound—the system no longer reacts against its presence. Shoot it into a new community, however, which never before felt its outrage, and we may hope for an inflammatory attack upon it which will bring into action everything known and done elsewhere and by others to arrest the injury.

Although not strictly entomological, our elaborate and long-continued studies of the food of birds and of fishes have so large a bearing on economic entomology that they are deserving of mention here. On the first of these subjects the laboratory was a pioneer, and the methods worked out by it are those now in use wherever serious investigation is in progress in this field. Its published work on the food of fishes is practically the only systematic work on this topic which has yet appeared in America. This subject has again been attacked at our Biological Station, and we have lately been requested by the U. S. Fish Commissioner to take it up on his behalf.

But I must not wear out your patience with a mere catalogue. I have said enough, I hope, to satisfy you that the public interests in the work of this department are not forgotten or neglected at the University; that we are doing what we can to put another generation of workers into the field to take up the work when we are done with it, better instructed and better trained than the present one could be in the beginning; and that we shall try to leave for them a sound and broad foundation of genuine knowledge of nature on which they may build securely, and an institutional equipment and a momentum of enterprise which shall put them at the beginning of their work at a point of advantage which it has taken us many laborious years to reach.

Prof. Eugene Davenport, Director of the Illinois Agricultural Experiment Station, was then introduced and read the following address on "Lessons from the Study of Comparative Agriculture:"



PROF. E. DAVENPORT.

LESSONS FROM THE STUDY OF COMPARATIVE AGRICULTURE.

The evolution of man from savagery to civilization corresponds closely to the evolution of the art by which he feeds himself, which is agriculture. It is a law of development that no primitive form endures to reach the highest excellence attainable by its kind, but is arrested somewhere along the line, giving rise to others endowed with capacity for higher development, and these in turn impart to succeeding generations ability for improvement beyond anything attainable by their predecessors. Meanwhile the old forms survive for a time as relics, arrested in their upward movement, crystalized, unchanging and unchangeable, serving to mark the steps of the evolutionary process and the student who knows the language may read the story of life and its activities readily. For example, no race of primitive man has endured to attain extreme development; each halts at some step and others rise to carry progress forward.

No highly civilized people can trace an unbroken lineage to the savage, and in this day of grace in different parts of the world are men of greatly differing degrees of development, each marking a step in the long and difficult struggle for the highest excellence, which has not yet been reached. The most that can be said to-day regarding the progress of evolution in man is that much has been accomplished, that there are numerous highly developed races, and that nowhere on earth to-day can be found the earliest type of man. But the range of differences is sufficient, together with history, tradition and relics to enable the story of man's development to be written.

So it is with the evolution of agriculture. Nearly all stages of its development are to be found somewhere in the world to-day or else exist in history, tradition, or geological remains. The agricultural practices of the world in the past and in the present as influenced by the stage of man's development, by racial prejudices or by local peculiarities—these are the basis of the great study of Comparative Agriculture in the light of whose teachings we may predict with tolerable certainty the consequences of dominant agricultural tendencies, but upon the land and upon the race by which it is occupied.

Primitive man had neither domestic animals nor cultivated crops. Savages at present have few of either, yet in their habits and practices are traceable the methods by which man has possessed himself of both; for every useful animal and plant has been domesticated and improved by infinite labor from some wild form possessing a value and therefore treasured.

Like the animals about him primitive man sustains himself by the hunt, and like them leads a precarious existence subject to many and severe deprivations and much distressing hunger. He secures his game with great difficulty and is not long in noting that certain of his animal competitors like the wolf combine their powers and hunt in packs. He is not long in discovering the advantage in this instinct and is not slow in capturing and training

the young of these natural animal hunters; and so it came about that the first domesticated animal was this tamed and domesticated wolf, afterwards called the dog.

The American Indian had tamed and trained the coyote and even the gray wolf, and what savage tribe has not done the same thing and crossed them back with the wild forms to retain their ferocity?

Savage tribes inhabiting the same region as the horse and his kind were not slow in seeing the advantage of a position upon the back of so fleet an animal, and when he had mastered both dog and horse man speedily became in truth lord of creation, for every useful animal soon contributed to his comfort.

Though the horse was for centuries the chief agent of war he has also been man's most useful companion in his long struggle for a higher position in nature. So faithfully have the dog and the horse labored for man and so well has man advanced that for all higher races his earliest benefactor the dog has outlived his usefulness, and has no place in his needs, except one of dumb companionship.

When the Spaniards discovered America the Peruvian Indians were making extensive use of the semi-wild animals of the mountains. But these useful animals were none too plenty and were preyed upon by sundry enemies. What more natural than that from time to time all the animals good and bad of a great region should be driven into some mountain valley, the beasts of prey destroyed, so many as were needed of the useful ones taken, but always from among the inferior specimens, and the better ones set at liberty to increase unmolested by their enemies? Here in these latter days were the Peruvian Indians doing what had doubtless been done by every other race that had reached their degree of advancement. They were the last race on earth to practice these first steps in the domestication and breeding of useful animals. What though extensive flock and herds wandered over western Asia in the days of Abraham these belated Indians 4,000 years later have taught us the beginnings in breeding and, thanks to the Spaniard, little more.

When useful animals can no longer maintain themselves in the wild state in sufficient numbers to satisfy the needs of increasing population they are herded and driven to better pasture grounds. The wandering hunter in search of chance game now becomes the nomadic herdsman in search of good pastures and sweet water, and grows rich in flocks and herds. Now for the first time he has regular food in plenty, and leisure, which are the two first requirements for civilization, and the useful and ornamental arts begin to engage his attention.

Races inhabiting regions destitute of useful animals are from the first directly dependent upon the soil. Of necessity they turn their attention to the vegetable world and seek out edible fruits, nuts and grains to sustain life. Trees that yield superior fruit will be held especially valuable and regions productive of much food will be greatly prized. Ultimately it will be necessary to protect the natural supply and even to increase its yield by clearing away competing vegetation or by saving seeds of the best for careful planting in some favored spot. Here are now the beginnings of field culture. Such a locality will become valuable. The tribe will not leave it, at least not until the crop is harvested, and they will fight for its protection and possession. So did the Indians cultivate the maize, and their agriculture, though destroyed in its infancy by the white man, had preserved from an earlier civilization and given again to the world its greatest food crop, Indian corn. Agriculture—Ager cultura—the first great civilizer, by her bountiful harvest teaches regularity, thrift, and independence, and by comfort and plenty insures that composure of the mind that quickens the mental faculties, and develops moral quality. Thus it is that despite the immense advantage of domestic animals, tribes inhabiting regions comparatively destitute of animal life have developed more rapidly, have become more quickly identified with the land and have in the end become better established. Thus it is that the great river valleys and the fertile plains have been the established seat of great nations. Thus it is that when two peoples confronted each other the grain raiser has always

prevailed and obtained ultimate possession to the exclusion and the final extermination of the non-cultivator.

An Indian chief understood this principle when in an address to his tribe urging the adoption of agriculture he said: "Know ye not that the white men live from grain, whilst we live from flesh, that it takes the flesh more than thirty moons to grow in, and that it is scarce; that every one of those marvelous little grains that they scatter upon the land returns to them a hundred-fold; that the meat whereon we live has four feet of flight, whereas we possess but two; that the little grains stay and grow where the white men sow them: that the winter which is for us a time of labor, is for them a time of rest."

"Therefore is their life longer than ours? I say unto you, every one that will hear me, that before the cedars of our village shall have died and the maples of the valley shall have ceased to yield us sugar the grain sowers will have rooted out the race of flesh eaters, unless the hunter shall resolve to sow."

Who shall say that this simple Indian did not prophesy correctly upon a great truth of universal application? His prophesy is long since history.

Domestic animals, at first a necessity and at last a convenience, with increasing density of human population and corresponding scarcity of food become a costly luxury because animal life is expensive of food. In general it requires ten pounds of vegetable food to make one of animal body, therefore is animal food ten times as costly as a vegetable diet, and to sustain domestic animals with a dense human population requires the most able effort of civilized man. No inferior race is equal to the problem, and long before the earth shall support its highest possible quota of human life we shall be compelled to give them up from sheer lack of space on which to raise their food.

China has already met this problem and surrendered to it. What wonder that in that country even vermin pay the penalty of their self-appointed companionship to man, and that the Chinaman after his long enforced abstinence from meat, collects and utilizes as human diet the food value that has gone to make up the carcass of the rat that preyed upon his store of grain? May the Anglo-Saxon race never be driven to this extremity for animal food, and may we early learn a lesson from comparative agriculture.

In all ages and in all stages of development there is a close correspondence between the condition of a people and the kind of agriculture that it maintains. Tribes that depend upon the hunt, or that seek hard subsistence in forest or brush, lead a precarious existence. With them it is always a feast or a famine, generally the latter, and, weakened by want they are an easy prey to disease and death, or to men that are better fed. Such were the American Indians, and such are many of the African tribes, depending for existence upon the chance crops of wild plantain.

Nomadic peoples, though rich in flocks and herds, do not form nations or maintain governments. They never become powerful in the earth, or incline to ownership of land or individual ownership in property. Their occupation appears to favor meditation, and they have given us mathematicians and philosophers of profoundly religious conceptions. But they are unchangeable, and the wandering Arabs of to-day have preserved almost intact the customs, traditions and prejudices of the children of Abraham. Accountable to nobody, they are the worst material possible for the building of a nation. The Tartar is as far from civilization as the wild ass of the desert or the zebra of south Africa. The only nomadic people known to have been built into a nation was the Jews, and it required 400 years of slavery and a settlement upon a fruitful country to do it. Even then their naturally rebellious spirit fretted at the curb of authority, and they became denationalized.

Grain raisers have been uniformly well fed, rich and powerful. The occupation compels a settled residence and a strong government that shall respect property rights. These are busy people, given to a study of the seasons and their changes, and taught thereby to harmonize with the operations of nature. The valleys of great rivers and fertile plains have thus become the seats of

great nations, whose people recognized the value of land and instituted territorial government over not only themselves, but over any and every race that should come within their borders. Such was Mesopotamia and the valley of the Nile. Such were the plains of India and the northwest, whence came in earliest times the Aryans—plowmen—who settled Europe, and who are our ancestors. But grain raising is disastrous to fertility, as many a region will testify, and many an extinct grain raising race bear witness.

The occupancy and ownership of land is vital to the preservation of a people. Only the Gypsies and the Jews, the two mysteries among men, have succeeded in preserving their institutions when dissociated from the land.

When two peoples struggle for the mastery under anything like equal conditions, the ultimate victory will be with the one that has the better food supply. But few people have been driven from their lands, but in unnumbered wars invaders in greatly superior numbers have been driven off. When the Normans conquered England, they had all the power and the machinery of government, but the Saxons fed the herds and tilled the land, and so effectually controlled the food supply as to compel their conquerors to learn the language of the conquered, and England to-day is essentially Saxon, rather than French. That insignificant relic of an unknown race, the Basques, still preserve their identity, their language and their laws among the hills in northern Spain. There are two methods of obliterating a race, by transportation from their land, the method of the Assyrian conqueror, or by extermination, the method of the modern Turk.

The effect upon the land of permanent occupancy by large numbers of men is a subject for anxious thought and for careful investigation. War and famine have sufficed to keep down population. Human life has been held cheap and its destruction a virtue, and not a crime. But the highest races, and they control the world and compel obedience, have now reached a degree of civilization that holds human life sacred, and even the most miserable specimens are carefully protected and religiously cared for. Under these conditions, with a popular sentiment against war, the population will greatly increase. Famine is now the sole remaining check to over-population, unless, indeed, it might be a general weakness from insufficient food, not enough to destroy life but sufficient to prevent the birth of vigorous young. In fact both these causes will be active, and will operate as they are now operating among the most miserable of people. This will give the higher races a numerical advantage, if they remain in condition to profit by that advantage. But it must be borne in mind that the higher races have more wants than the lower, and that while they will supplant the inferior ones if their natural needs be not supplied, they must gradually sink to the level of the lowest.

The supremacy of the superior people can be secured and their high standard maintained only if they shall become and remain skillful manipulators of the soil, to the end that a full and regular food supply may be assured indefinitely. As the standard of civilization advances, the wants of man multiply and his needs increase. These needs must be met, if he maintains his high degree of development. Therefore must he be increasingly attentive to his food supply and to the perpetual productivity of his lands.

Much of the land that sustained the old world population through 40 centuries of war and mutual destruction, is now a desert. The glory is gone from Mesopotamia and from Palestine, that once supported their teeming millions. The terraced slopes are now furrowed by washes leading to the wadies that for most of the year are dry and parched, and for the remainder carry rushing torrents. Their plains are dry and drifting, and the sands blow even over the bricks of mighty Babylon.

Egypt, the granary of the world, supports to-day a miserable and straggling population, not worthy to be the slaves of the mighty Pharaohs that have gone before. The abuse of some of the best lands on earth would make even the Sphinx turn pale. The people themselves have been the sufferers, and with the departing fertility the one-time powerful nations have vanished from the earth forever.

The Hindoos and the Chinamen, crowded into a corner of the world and separated from each other by practically impassable mountains, have devol-

oped an agriculture under which the lands have remained enormously productive after thousands of years of tillage, and they have preserved themselves long after their western contemporaries have disappeared. The lesson they have learned we need to know.

The Aryan spread over Europe like a scourge, and already their southernmost and earliest civilization has been a thing of the past for a thousand years. Under its most modern representation the Anglo Saxon northern Europe is in its glory to-day, and the overflow has peopled, mostly within 100 years, about all that is valuable of this western continent. None of us realizes how this Anglo Saxon race is flourishing these days, nor how thoroughly it is taking possession of the best parts of all the earth.

But what of Anglo Saxon agriculture? The motto is "Go west, young man, seek new land." They, we, are good liver. We farm for revenue only, and we are the only people on earth who have grown rich individually in farming. We are a race of robbers, for in a century we exhaust the fertility that has been the work of ages. We have possessed this continent at the longest 400 years, and from the agricultural standpoint less than 200, yet regions of such marvelous fertility as the valley of the Mohawk, the James, and the York lie exhausted and barren.

Already we hear of failing fertility, even on our western lands less than two generations under cultivation. The short period of 1,000 years is over thirty generations. We shall need over a hundred generations if we endure as well as the Egyptians. Shall we not need to mend our agricultural methods ere that time be upon us? With all our boasted knowledge of agriculture, and it is all Anglo Saxon, for we have been too proud to learn, we can not to-day with confidence lay down practices that will be safe and profitable and that will sustain the productive capacity of these prairies for 1,000 years. I say, without fear of successful contradiction, that our race does not know how to do it, and maintain at the same time our present degree of civilization, and it is a problem whose solution we can not too soon begin, if we feel a racial pride and would do our duty by posterity. Who wants Anglo Saxon civilization to give way before an inferior, simply because that inferior knows better how to wring bare sustenance from the earth? History records more than one such instance.

Among the numberless great questions pressing upon us for solution, none is quite so great as this: How shall this Anglo Saxon race, that has always preyed upon virgin fertility, with no more new lands to conquer—how shall it insure perpetual productiveness in these soils it now possesses, and to a degree that shall permit still higher development and civilization of the race?

To foster intelligent, progressive, but conservative agriculture is our greatest duty, not only to ourselves, but to posterity. To make the most of our domestic animals, and to preserve fertility as we would cling to life, that nothing be wasted; to look upon the business of food production as a fundamental and all essential business, the greatest bulwark against attack and the greatest assurance against degeneracy,—this is our racial, our national, and our individual duty, and it is the business of the student of agriculture to sound the note of warning, and to direct attention to the larger problems wherein the condition of our agriculture will for all time decide the fate of the race to which we all belong.

E. DAVENPORT,

Dean of the College of Agriculture, University of Illinois.

Prof. T. J. Burrill, Professor of Botany and Horticulture, University of Illinois, was then introduced and read the following address on Bacteria in Agriculture:

BACTERIA IN AGRICULTURE.

There is no romance equal to that of natural science. We sometimes think that progress along a given line of investigation is slow, because the forward movement carries us along with it. We move fast enough, perhaps, but fail to perceive the milestones which mark the movement. It is only when we retrace the ground that we find how far we have gone from the point of departure. Let us see what may be done in a few minutes review along one particular line.

We have heard much of late about bacteria. The word, at least, is a familiar one to us. It is such a common term now and denotes so much that it seems hard to appreciate that it was new to every one of us some time within the last twenty-five years. It is only about forty years since a few specialists began to give serious attention to the minute organisms, not previously considered worthy of attention or perhaps not previously known. Our conceptions of very many phenomena in nature are radically different now from what they were at the time mentioned. Then it was understood that organic matter had in itself the tendency to putrefy or decay, that fermentation and decomposition spontaneously occurred, that they were processes of running down and were as natural as the current of rivers towards lower levels. Disease in plants and animals was looked upon as a something having an existence of its own, an entity capable of self-propagation or else as some engendered motion or habit in the minute structures of the bodily tissues. In fact, we then knew about as much of the nature of communicable disease as we now know of ghosts and of their domestic affairs.



PROF. T. J. BURRILL.

It is true that in various practical affairs we had learned empirically certain methods of procedure towards the accomplishment of some desired results. Yeast was added to dough to make light bread; vinegar was made from cider by a certain kind and amount of exposure of the fresh apple juice; manure was rotted by piling up and forking over the fresh droppings from the stables; cleanliness was considered imperative in the treatment of wounds, and certain diseases were to be avoided by running away from affected persons. Still, there were many exceptions to these empiric rules. Things altogether unexplainable often happened. We now know that under the thick cover we were then attempting to see there were operations in progress altogether unsuspected. Our practice, perhaps, was all wrong. Instead of frequent removal of bandages from wounds for the sake of the supposed essential cleanliness, we should have carefully left them as protection from outside enemies. Instead of running away from the black plague, we should have, by feasible means, banished the plague itself.

With the new light, with the information gained almost wholly during the last two decades, we now recognize that fermentation and decay is not due to any inherent weakness or tendency, to any instability of structure, of organic bodies. Left to themselves, however favorable the temperature and other conditions, milk does not sour, blood does not putrify, potatoes do not rot, fruit juices do not ferment, meat does not spoil, butter does not become ran-

cid, heaped green vegetation does not heat, wood does not decay. Health is at least as contagious as disease. We know, too, that bacteria are not alone and altogether agents of destruction and disaster; they are essential to our well being and indispensable in several ways to our life upon the earth. There are indeed agents of disease and death, but they are essential factors in the general round of nature upon which we are absolutely and directly dependable for life and health.

One word as to what bacteria are. They are minute plants, always very small and always very simple in structure, but variable among themselves in size, in shape, in color or color relations, and especially in habits and peculiarities of affects. True species exist among them as among higher forms. One kind has constantly its own set of characteristics, differing from those of another kind, just as animals in a pasture may be of several species which never hybridize or intermingle genetically, each keeping true to itself. How many distinct species of bacteria there are can not be told. Many are definitely known and may be distinctly recognized anywhere; more will be known in this way as studies upon them are continued; but there seems now to be little prospect of ever getting a full catalogue of all the species of these little workers, or that anybody, however expert he may become, will ever be able to recognize and classify every kind he meets with in microscopical research. When a special kind is found it is easy enough to propagate it, in most cases, by artificial methods and to keep it from admixture with other kinds. Thus experiments may be instituted and carried forward with one separate species until the investigator learns not only to identify the organism, but to understand its activities and effects. These studies belong to the laboratory. Want of time precludes description of any of them here. In general it may be said that each species has its own particular mode of life and produces its own characteristic results. One ferments animal fluids with the generation of particular acids or gases; one breaks down the woody fiber of plants; one sets free the ill-scented substances of putrefaction; one causes the decay of the teeth; one is the agent of splenic fever in cattle, and one is the cause of consumption or tuberculosis in man and in many animals. Some of them have wider rolls than do others, but differences exist which are as marked and as permanent as are those among higher plants and animals.

Some people are inclined to reject the idea that great harm ever comes from bacteria because certain kinds are so commonly found about us without bad results. House flies are troublesome enough, but are not generally considered dangerous foes to mankind. Does this prove that wasps have no stings and that tarantulas and scorpions are harmless things to handle? When we come to recognize that there is as great difference in the kinds of results produced by different species of bacteria as there is by house flies on the one hand and poisonous insects and reptiles on the other, we shall be better prepared to accept without quibble or reserve the demonstrations of the laboratories that certain specific kinds of these organisms are the active agents in the causations of particular diseases or other results beneficial or harmful to us, as the case may be.

Now in the few minutes at my command I can do no more than recount some of the relations these organisms have to the various departments of agricultural industries. The things mentioned can have scarcely more than mention, while these must be taken rather as samples than as an exhaustive list of benefits and injuries on the part of our diminutive agents.

Fermentation and Decay.—Other agents are at work in these processes, but bacteria easily hold the first place in all things agricultural. Commonly we look upon the processes as harmful. Meats and various other animal and vegetable products must be preserved usually in troublesome and expensive ways, or bacteria take precedence of us in possession. Here hinges all our operations of salting, drying, canning, etc., as applied to articles of food. The sweating of grain and hay in the stack, and the heating of grain in the bin, when put in too moist, are results directly due to these minute workers. The souring and other changes so soon wrought in milk are solely their accomplishments. Let us look a little further into this last, for it is a subject now receiving much attention. There have recently been placed on record, largely in the bulletins of the experiment stations, the results of numerous

researches upon the number of bacteria in milk as it is usually taken from the barn or as it is commonly delivered to consumers. Russell, of the Wisconsin station, found that when a cow which had been running in a pasture, was milked there, that is, away from the barn, where the air is more contaminated, there fell, before any special precautions were taken, into a ten-inch pail, 3,250 bacteria per minute during the milking. After the same animal, at the same time and place, was well washed and all feasible precautions were taken to avoid dirt and dust, only 115 germs per minute were deposited in the pail. In Boston investigations showed that in fifty-seven samples as delivered in the city there were from 30,000 to 4,220,000 of these organisms per cubic centimeter (2.5 inch), while in the milk as carried from the cows in the country there were 30,000 to a cubic centimeter. Fifteen thousand to 20,000 bacteria to the cubic centimeter is certainly not a high estimate, according to what is now known, in milk obtained fresh from the cow under what are called good conditions.

These numbers seem incredibly large. It does take great faith in an experimenter's methods to accept the results as true. No one is usually more skeptical in such matters than the investigator himself. He will be sure to demand confirmation of so enormous counts. But this has now been made over and over again and there is no doubt that the statements just made are well within the truth. Where do all the organisms come from? We have said there are, under ordinary conditions, some 20,000 living germs in fresh milk. Do they therefore come from the udder of the cow? On this point all testimony, and there is much of it, is agreed and the answer is no. Some bacteria gain access from the air to the lower portion of the canal of the teat, hence the first milk drawn is usually bountifully supplied as it issues under the hand of the milker. But with this exception those found in the newly drawn milk in the ordinary milk pail, as noted above, get into the fluid from outside. Fraser, of the University of Illinois, has some interesting unpublished results upon this point. His work was done with circular plates or dishes four inches in diameter. The figures here given are for the number of living bacteria that fell on these plates from the air during an exposure of one minute. In the dairy cool room, where everything, including the cement floor, is kept thoroughly washed, he found only one. In the barn just after cows had been well brushed, ten feet in front of manger, 67, and, at same time, three feet behind cows, 310 bacteria. Again, after things had been as quiet as possible in the barn one and one-half hours, three feet back of cows 35, and in same place one-half hour later, during which time eight cows were cleaned with the brush, 352 bacteria. Then during milking, the cows' udders having been well brushed and wiped with a moist sponge, on plates held between pail and udder, 7,983 bacteria. On other plates in same situation they were too numerous to count.

Here is explanation enough as to where the bacteria in the milk come from. Some of them fall in from the general air of the barn, but by far the most of them come from the surface of the skin of the cow and fall down in large part as dandruff or scales of the scarf skin. Nothing short of thorough washing with soap and water can obviate this in any considerable measure. Fortunately the kinds of bacteria so deposited in milk are not likely to be poison generators though they do cause souring and coagulation. Some time we shall take more pains to secure bacteria-free milk. Infants especially will gain by the new and more rational procedures.

If, however, we are to keep bacteria out of milk we will make more use of them, certain species of them, when we do the best thing, in ripening cream for butter and in making cheese. In these cases the little workers are friends, though cream and cheese are occasionally poisonous from bad kinds of developing therein.

The ferments which convert cabbage into sauer kraut, and corn and clover into silage, are practically the same things and certainly are members of the group of living organisms with which we have now to deal. Surpassing these special kinds, however, in importance to the agriculturalist, are those which turn vegetable and animal matter into elements of soil fertility. A hot manure pile is a place of most marvelous activity, if we could see what is there taking place. There are countless millions of workers actively engaged in reducing

the crude materials into the manufactured product by which soil may be enriched. Whether the work is done in the steaming pile, or after the substances are turned under by the plow, may make some difference in practice but not as to the need we have of these busy helpers. No agricultural crops could be produced in our fields, not even in Illinois fields, without their friendly assistance. We have heard much during recent years of the nitrifying processes constantly proceeding in fertile soils, where there appears to be a division of labor among several distinct species of bacteria. One kind give off ammonia as a product of decomposing organic matter, another converts this with some of the earthy salts into nitrates, and still another forms from the latter nitrates suitable for the food of plants. Some one has said the soil is a factory, not a mine. We ought to congratulate ourselves that in this factory the workers never go out on strikes, notwithstanding the fact that they are skilled artisans whose places it is impossible otherwise to fill.

The longest and best known among plant diseases caused by bacteria is the so-called "fire blight" of pear and apple trees. Whatever may be the basis for the resistance possessed by some varieties of fruit trees, none are so susceptible to this disease that it would appear without the introduction to their succulent tissues of a specific bacterium not hitherto found to live elsewhere in nature, save in some allied living plants. The European varieties of pear, apple and quince are just as prone to the disease as any others, but they escape entirely throughout all European countries, for no evident reason except the absence of this particular parasite. Timely pruning away of all affected parts of diseased trees is a feasible remedy, but to succeed well intelligent watchfulness is required. There is no other way to save an affected tree upon which any reliance can be placed, whatever ill-advised persons say upon the subject. Something can be done by the way of avoidance in securing a medium annual growth with well ripened wood in autumn.

Other bacterial diseases of plants are such as: A blight of the foliage of potatoes and a moist ill-scented rot of the tubers; of oat plants, on account of which the leaves, usually before the stem shoots, turn yellow and die; of broom corn and sorghum, made most noticeable by red blotches on the stems and leaves and by a weakened growth; of cucumbers and melons; of garden lettuce; of beans, affecting especially the young stems and pods; of hyacinth bulbs; of carnation plants, etc. Some years ago a peculiar and wide-spread disease of field corn was supposedly traced to bacteria affecting the leaves and leaf-sheaths, and more injuriously the roots of the plant. There is still no doubt but that the organism then identified does thus live at the expense of the maize plant, but further investigations seem to show that it is not answerable for all the affects ascribed to it. The corn, especially on ground originally low and wet, and perhaps reclaimed by tiling, grows well at first, but when from one to three feet high, becomes yellowish and too slender. Upon trial the stalks are easily pulled up and the older lower roots are found to be dead. Subsequently in undisturbed plants other roots push out above and the plant often regains vigor and may satisfactorily develop. This disease needs further study. In the case of diseased broom corn and sorghum, the bacteria live over winter in the old stalks and roots. Hence an alternation of crops is desirable.

Insects are often destroyed by bacterial parasites, which operate like a pestilence among them. Whole broods of silk worms are sometimes destroyed as effectually as if fed upon poison. The same thing not infrequently happens to several other kinds of caterpillars, including the cabbage worm and some of the leaf eaters which live in colonies. Fortunately the notorious chinch bug suffers in the same way, though from a distinct species of the death dealers. It has been hoped that this parasite might be artificially cultivated and the disease introduced so as to exterminate the pests, but efforts in this direction, as well as those dealing with parasitic fungi, have not apparently proved successful.

Of the diseases of our domestic animals, those due to bacteria constitute both the greater number and are the most virulent. Thousands and thousands of dollars are lost every year by our farmers and others in this way. Anthrax or splenic fever in horses, neat cattle and sheep; tuberculosis in all domestic animals, but especially in cows; glanders and tetanus or lock jaw especially

in horses; hog cholera and swine plague in pigs; cholera in fowls; lumpy jaw and doubtless, though less certainly, pleuro-pneumonia in cattle,—these are some of the diseases that despoil the husbandman and endanger human health and life. Considerable progress has been made towards eradicating them or in securing individual animals against their ravages. There is much hope that science and practical experiment will lead the way out of this slough to despond, from which formerly there seemed no escape.

There is but one other matter to which I wish here to allude, and as this is the latest development of bacteriological science in relation to agriculture, a fuller statement is justified.

Botanists at least have long known that certain kinds of plants, mostly belonging to the pea family, *Leguminosae*, have little nodules, like very small tubers, on their roots. Since 1857 it has been agreed by agricultural chemists that plants generally are altogether unable to help themselves to the free nitrogen of the air as an element of their food. But it was also well understood that certain leguminous crops were exceptions to this rule. Why they were different from other plants was not known until 1886, when Hellriegel and Wilfarth of Germany showed that the peculiarity was due to living organisms distinct from the plants but dwelling in the root tubercules before mentioned. This was not only a very curious but a very important announcement. It opened up a new field of inquiry and helped to settle a puzzling condition of things. Neither were the practical bearings of the new information neglected. The replenishment of the constantly wasting nitrogenous compounds of the soil so essential to fertility was everywhere considered one of the most important problems of scientific and practical agriculture. The fertilizing value of clover had been established; here now came the explanation. The clover itself is as powerless as other plants. If grown in a soil free from the special organisms elsewhere found in the root tubercules, it assimilates no more nitrogen than does cabbage or wheat. In this case no tubercules are formed on the roots; but upon scattering some of the soil from a field where they exist over that without them, thereby introducing the organisms, root tubercules are soon formed and assimilation of the nitrogen of the air begins. Instead of soil exhaustion, enrichment follows, and other crops following profit by the extra supply of stored nutriment. Can anything be more important or more worthy of the best possible attention?

These studies have been continued both in the Old World and in our country. The evidence now seems to show that each species or each group of nearly related species of the tubercle-bearing plants, has its own special kind of bacteria. Those from a given species or group either fail to grow or do so with lessened vigor when transferred to other species of plants, though there is reason to think that the process of adaptation to new hosts is slowly acquired by the bacteria. Those from different hosts have characteristic peculiarities of shape and size, showing their probable specific difference. But it is noted that these peculiarities soon become less pronounced in artificial cultures, and therefore not very deeply impressed.

Beginning last April, under the direction of Nobbe, a well known German investigator in this line, the artificial propagation of some twenty kinds of these tubercle-producing bacteria has been undertaken on a commercial scale for the purpose of inoculating fields to be seeded with certain crops with the special organism appropriate to that crop. The material is put up in flasks, each deemed sufficient to infect half an acre of land, and is sold for about sixty cents. Much has been said in the public press and elsewhere about this novel procedure, but it is too early to pronounce upon the practical benefits thus conferred. It may prove to be a remarkable contribution from science to practical affairs. Another year will help to determine this.

About four years ago the Experiment Station at the University of Illinois undertook a still more important line of experiments, if it should ultimately prove that success is possible. This was an endeavor to breed a race of these soil bacteria capable of living on the roots of Indian corn. It cannot be said there was ever much hope in the attempt, but some slight indications of success were met with. We must not yet say that the idea is chimerical. If it ever comes to pass that through scientific research and experiment our staple

crop, maize, can be made to utilize in its nutrition the free nitrogen of the air, as clover now does, the greatest imaginable advance in practical agriculture will have been made, and this great corn country of ours, now the richest area of equal size on the green earth, will become known and read of all men for its immense productiveness. Then, indeed, corn will be king.

The Chairman: Your program calls for an address on the "Economic Conservation of Soil Fertility," by Prof. C. G. Holden, Professor of Agricultural Physics of the University of Illinois. Prof. Holden is unavoidably detained, much to the regret of all who have had the pleasure and profit of listening to his addresses. What is your further pleasure?

Pres. Palmer: We have completed the program of the day, much to the interest and, I trust, instruction of all present, and the Institute will now stand adjourned until to-morrow morning at 9 o'clock, when the convention of delegates representing the various County Farmers' Institutes will assemble in the Supreme Court room on the executive floor of the State House.

PROCEEDINGS CONVENTION OF DELEGATES
TO THE
ILLINOIS FARMERS' INSTITUTE.

SUPREME COURT ROOM, STATE HOUSE,
WEDNESDAY, FEBRUARY 24, 1897, 9 O'CLOCK A. M.

The convention was called to order by President F. M. Palmer who addressed the meeting as follows:

Some time ago I resolved that if I was permitted to attend this, our annual meeting, and preside during your deliberations, I would do very little talking. It is not considered, I believe, good taste nor proper for the chairman to do the talking. I have heard of cases where men were elected to preside for the special reason that their friends desired to keep them quiet, and as I have a weakness, possibly, in that direction it might be my friends have had some design against me.

And as this is a business session I will be very brief. A statement, however, of "where we are at" may not be out of place.

The law under which this institute is held was passed by the last General Assembly. The same bill, in substance, had been introduced in the previous General Assembly by the Hon. T. B. Carson, at the request of your chairman, and recommended favorably to the House of Representatives, but it failed to be finally passed upon because it was not reached on the calendar at the close of the session.

The bill creating the Illinois Farmers' Institute did not provide within itself for an appropriation because it was considered better policy to create the organization and then ask for an appropriation. Many of our friends in the General Assembly said to us that we could not get along, even for a short time, without money; that we could not hold a meeting without quite a sum for advertising, stationery, postage, etc. Well, we have held one meeting and are convened in a second. We have succeeded in this only by the generous coöperation of our friends and going down in our pockets for deficits.

While the directors of your organization have plans for the future which will greatly improve the usefulness and benefits of this organization, we desire to know from you, the representatives of a constituency whose will ought to be law, not only within this organization but upon the statute of this imperial State, whether you are dissatisfied with your present plan of organization, a plan by which the farmers themselves directly control their own institutes. For lack of funds the State organization has been able to help the county institutes but little. With a fair appropriation for sustaining this work, the State organization can greatly aid and assist in making the county institutes of greater interest and more beneficial. It can secure for them the services of the ablest talent in different lines. It can aid and assist those counties that need help and at the same time the greatest freedom be permitted to those counties which are succeeding grandly without assistance. When we are ready for it I believe that the State should have a Superintendent

of Institutes who will give his whole time and talent to planning how our institutes may be improved and the good they accomplish extended, as is the case in most of the neighboring states, especially Wisconsin; but I suggest that this superintendent should be selected as directly as practical by the farmers themselves, to be their counselor and advisor and he should be directly responsible to them for the proper and satisfactory discharge of this duty. When this organization was created, only thirty-two counties in this State had county institutes. Our secretary informs me that at the present time eighty-three have reported to him. Most of these additional counties have been organized through the direct efforts of the directors and officers of this State organization. Many institutes have held two or three meetings in different parts of their counties during the season.

It will not be necessary for me to go into the subject of how much good institutes do and can do. You realize the importance of institute work else you would not be present here to-day with credentials certifying to your interest.

In conclusion, I would, however, emphasize this thought, that it is not the only purpose of institutes to teach how to raise bigger crops, better horses, fatter hogs, but to make better men and women, better boys and girls of our rural citizenship. And as our city population is made up largely of emigrants from the country, the improvement of the former benefits the entire body politic. The farm has furnished the material out of which has come our most eminent men and women of every art and profession. From our country homes must come the strength and promise of this nation. We may talk of our crops, of our flocks and herds, they are important subjects, but the great object of institutes is the quickening of brain development, mental culture and moral worth among the people.

The President: The next order of business on the programme is a report of your Secretary, Charles F. Mills, of Springfield, Ill.

The Secretary read the following report:

Mr. President and Members of the Illinois Farmers' Institute:

The promoters of the Illinois Farmers' Institute have endeavored, in completing the organization, to unite and secure the coöperation of all the agencies in the State interested in the extension of useful education among the farmers and likely to aid in the further development of the agricultural resources of the State.

The intelligent and progressive farmers of Illinois have manifested a deep and lively interest in this work by aiding the State Institute in the organization and support of county meetings, and have given unquestioned evidence of their desire and ability to successfully manage County and State Farmers' Institute Meetings.

The expressions of the leading institute workers of the State to the members of the last General Assembly demonstrated to that able and honorable body that there was no desire to make the organization the appendage of any existing board or institution.

In accordance with the general expression of the most progressive farmers of the State the last General Assembly manifested its appreciation of the great benefits resulting from the holding of Farmers' Institutes Meetings by the passage of a law creating the Illinois Farmers' Institute and placing its management under the direction of a board selected by the County Farmers' Institutes of the State.

The State Institute is made the agency of the County Institutes to carry out such plans in connection with the general institute work of the State as will best promote the objects of all interested.

The Illinois Farmers' Institute, in compliance with the provision of the act of the General Assembly, entered upon its work the last of June, 1895. There was but little time, after the passage of the act creating the Illinois Farmers' Institute, to complete the temporary organization before the institute season opened for 1895 and 1896.

The directors representing the several congressional districts entered earnestly upon the work of organizing County Institutes and aiding the officers of completed organizations in extending the usefulness of the same.

At the time of the first meeting of the State Institute Board about one-third of the counties in the State were enjoying the benefits of a County Farmers' Institute organization.

The first State Farmers' Institute was held January 7, 8, 9, 1897, in Springfield. The meeting was well attended and the papers and discussions are deserving of the high commendations so generally received at the hands of all interested in the Farmers' Institute work in Illinois.

The annual report of the Illinois Farmers' Institute, in a measure, indicates the large amount of work performed within six months after the passage of the act creating the same.

There has been no lack of effort on the part of the directors of the State Institute to extend the work and complete the formation of institutes in all the unorganized counties, and we take great pleasure in calling attention to the valuable assistance rendered by some of the active promoters in this work.

The State Teachers' Association has heartily coöperated with the Illinois Farmers' Institute in promoting the work contemplated in the act of the General Assembly creating the same, and much good has resulted from the assistance received at the hands of the teachers of the State. The standing committee on farmers' institute work, appointed by the State Teachers' Association, consisting of county school superintendents, has performed excellent service.

Hon. S. M. Inglis, State Superintendent of Public Instruction and *ex-officio* a member of the Illinois Farmers' Institute, has greatly aided in the organization and holding of county institutes, and through his efforts many county superintendents have been induced to heartily coöperate in the work.

Hon. J. W. Judy, the president of the Illinois State Board of Agriculture and *ex-officio* a member of the Illinois Farmers' Institute, by personal appeal and correspondence, has encouraged the officers of county fair associations to assist in organizing a number of efficient county institutes.

Hon. Oliver Wilson, master of the State Grange and a director of the Illinois Farmers' Institute, has encouraged a number of local granges to organize and sustain Farmers' Institutes.

The directors of the State Institute have made an earnest effort to complete the organization of Farmers' Institutes in the counties in the respective districts, and the record for efficient work made by each is deserving of especial mention and commendation.

The success attending the efforts to establish such organizations has been very gratifying, and within the short time since the passage of the act creating the Illinois Farmers' Institutes over fifty new county institutes have been formed. There is every reason to expect that before the close of the second year after the passage of the law that the few unorganized counties will be added to the list of counties enjoying the benefits of Farmers' Institutes.

The Board of Directors placed in control of the Illinois Farmers' Institute, by the act creating the same, was composed largely of members of the late General Assembly who were recommended for said offices by the institute workers of their respective districts and in recognition of their manifest interest in the work contemplated by the law.

The majority of said members as the election held in January, 1896, favored the selection for their successors of active and experienced institute workers residing in their respective districts.

The new members of the directory, as their reports will indicate, have entered upon their work with enthusiasm, and the results accomplished during the past year have been highly satisfactory.

County and district institutes to the number of nearly one hundred will be held in Illinois during the current institute season.

The institute season of 1896 and 1897 opened early in September and will close in April.

The dates for the institute meetings of the current season have been appointed as follows: Forty-two per cent. of the meetings for January, forty per cent. for February, seven per cent. for December, five per cent. for October, three per cent. for September and one per cent. each for March, April and November.

The massing of so many county institute meetings in the months of January and February has greatly interfered with the efforts of the directors of the State Institute Board to make satisfactory appointments for the services of a number of speakers in great demand.

This difficulty can be obviated largely in the future by the arrangements of dates extended over the period in which institute meetings can be held to advantage.

In addition to the county institutes held in more than three-fourths of the counties, quite a number of township institutes have been held, to the great satisfaction of the farmers residing in the neighborhoods where held.

The interest in the county institute meetings held in all sections of the State during the current season is such as to give great encouragement for a continuation and enlargement of the good work.

There is a manifest improvement in the high character of the programs arranged for the late meetings and the efforts made to secure the best class of speakers has resulted in a much larger attendance and increased interest in the proceedings.

The prevailing sentiment in all portions of the State confirms the reports of the officers of county institutes that the meetings are growing in interest and popularity.

The officers and farmers in attendance at the county institute have cheerfully expended much time and thought in completing arrangements for meetings and the outlay in money in the conduct of institutes has in some counties exceeded more than ten to one the appropriation made therefor by the State.

In the absence of detailed statistics of attendance at county institute meetings only an approximate estimate can be made as to the number present.

The officers of some new institutes report a small attendance while others report that the largest halls will not accommodate the crowds.

In a number of counties the institutes are held out of doors and the attendance numbers over two thousand people.

The attendance reported by the officers of a number of county farmers' institutes warrants the estimate that between forty and fifty thousand people were present at the meetings the past year and that a much larger attendance may be expected from year to year.

The annual report of the State Auditor for 1894 shows the appropriation expended for the encouragement of county farmers' institutes was \$3,057.15, which would make an average annual expenditure of less than eight cents for each person enjoying the advantages of said meetings.

Institutes have been appointed for the current season as follows:

County.	Location.	Date.
Adams.....	Mendon.....	October 8, 9, 1896.....
Bond.....	Sorento.....	September 16, 17, 1896.....
Boone.....	Belvidere.....	February 2, 3, 1897.....
Calhoun.....	Hardin.....	November 5, 6, 1896.....
Carroll.....	Thompson.....	December 16, 17, 1896.....
Champaign.....	Rantoul.....	January 21, 22, 1897.....
Christian.....	Taylorville.....	February 17, 18, 1897.....
Clark.....	Marshall.....	January 15, 16, 1897.....
Crawford.....	Robinson.....	February 9, 10, 1897.....
DeWitt.....	Clinton.....	January 18, 19, 20, 1897.....
DeWitt.....	Farmer City.....	February 16, 17, 1897.....
Douglas.....	January 27, 28, 1897.....
DuPage.....	Wheaton.....	February 9, 10, 11, 1897.....
Edgar.....	Paris.....	February 24, 25, 1897.....
Edwards.....	Albion.....	February 11, 12, 1897.....
Ford.....	Sibley.....	January 21, 22, 1897.....
Franklin.....	Benton.....	April 4, 5, 1897.....
Gallatin.....	Shawneetown.....
Greene.....	White Hall.....	January 19, 20, 1897.....
Hamilton.....	McLeansboro.....	March 4, 5, 1897.....
Hancock.....	Carthage.....	December 9, 10, 1896.....
Hancock.....	Hamilton.....	February 16, 17, 1897.....
Henry.....	Geneseo.....	January 26, 27, 1897.....
Iroquois.....	Gilman.....	February 10, 11, 1897.....
Jasper.....	Newton.....	January 26, 27, 1897.....
Jefferson.....	Mt. Vernon.....	January 20, 21, 22, 1896.....
Jersey.....	Jerseyville.....	February 4, 5, 1897.....
JoDavies.....	Warren.....	February 25, 26, 1897.....
Kankakee.....	Kankakee.....	February 18, 19, 1897.....
Kendall.....	Yorkville.....	January 20, 21, 1897.....
Knox.....	Galesburg.....	February 10, 11, 12, 1897.....
LaSalle.....	Ottawa.....	January 13, 14, 1897.....
Lawrence.....	Lawrenceville.....	January 20, 21, 1897.....
Lee.....	Dixon.....	February 15, 16, 17, 1897.....
Livingston.....	Fairbury.....	February 3, 4, 1897.....
Logan.....	Lincoln.....	January 22, 23, 1897.....
Madison.....	Highland.....	September 3, 4, 1896.....
Marshall.....	Henry.....	January 20, 21, 1897.....
Mason.....	Easton.....	February 3, 4, 1897.....
Mercer.....	Viola.....	January 21, 22, 1897.....
Macon.....	Decatur.....	February 9, 10, 11, 1897.....
Menard.....	Petersburg.....	January 19, 20, 1897.....
Montgomery.....	Hillsboro.....	February 16, 17, 1897.....
Morgan.....	Jacksonville.....	February 10, 11, 12, 1897.....
McDonough.....	Macomb.....	October 28, 29, 1896.....
McHenry.....	Woodstock.....	January 27, 28, 1897.....
McLean.....	Bloomington.....	January 13, 14, 1897.....
Ogle.....	Oregon.....	February 18, 19, 20, 1897.....
Platt.....	Monticello.....	January 26, 27, 1897.....
Pike.....	Pittsfield.....	January 15, 16, 1897.....
Putnam.....	Hennepin.....	January 5, 6, 1897.....
Randolph.....	Sparta.....	January 28, 29, 1897.....
Rock Island.....	Port Byron.....	January 19, 20, 1897.....
Sangamon.....	Auburn.....	October 21, 22, 1896.....
Schuyler.....	Rushville.....	February 18, 19, 1897.....
Stark.....	January 28, 1897.....
St. Clair.....	Belleville.....	February 23, 24, 1897.....
Stephenson.....	Freeport.....	February 9, 10, 11, 1897.....
Tazewell.....	Delavan.....	January 13, 14, 1897.....
Vermilion.....	Danville.....	January 12, 13, 14, 1897.....
Wabash.....	Mt. Carmel.....	December 15, 16, 1896.....
Wayne.....	Fairfield.....	February 3, 4, 5, 1897.....
Whiteside.....	Sterling.....	December 9, 10, 1897.....
Whiteside.....	Fulton.....	February 3, 1897.....
Winnebago.....	Rockford.....	January 28, 29, 1897.....

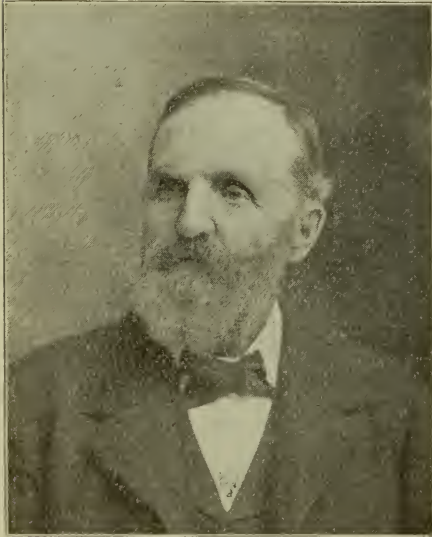
The work accomplished by the Illinois Farmers' Institute in but little over one year's time from the passage of the act creating the same, with no funds or assistance from the State or elsewhere, is evidence that only a moderate appropriation is needed to ensure the most satisfactory results from the operations of the present law.

The President: The next order of business is the reports of the condition of the Farmers' Institute work in the several Congressional districts by the directors representing the same.

Reports were received as follows:

Eighth District: Mr. H. C. Middaugh, Clarendon Hills, in the absence of B. F. Wyman, director, spoke as follows:

I am here as a delegate from DuPage county, and I might say that I have had the honor to preside at two institutes in DuPage county. We have two institutes. One organized last year with a fair attendance. The weather was a little against us. We had a little blizzard the second day. This year we had a very interesting three days' session. The last day it was crowded. As we are building a new court house we did not have accommodations. We had an address from Mr. Wyman, who we expected here, but they are holding a convention there. The interest is growing in our own county. We expect to have a large meeting in the future. We came down here for the purpose of getting information and learn something from the institutes who have been holding for some time. We want to know what will make the meeting more interesting. I heartily concur in what the chairman of this convention said, "That it is not all to raise fine horses, fine hogs and fine corn, but good men and women." (Applause.)



AMOS F. MOORE.

Ninth District: Amos F. Moore, of Polo, the director for the Ninth Congressional district, furnished the following report:

The Farmers' Institute work in the Ninth Congressional district is in a flourishing condition. Our farmers are fully alive to the importance of the County Farmers' Institutes and attend in large numbers and actively participate in the meetings.

The institute meetings for the current season in the counties composing the Ninth district have or will be held as follows:

Boone county, at Belvidere, February 2 and 3, 1897.

Carroll county, at Thompson, December 16 and 17, 1896.

JoDaviess county, at Warren, February 25 and 26, 1897.

Lee county, at Dixon, February 15, 16 and 17, 1897.

Ogle county, at Oregon, February 18, 19 and 20, 1897.

Stephenson county, at Freeport, February 9, 10 and 11, 1897.

Winnebago county, at Rockford, January 28 and 29, 1897.

If any better meetings are held in any Congressional district in the State than the Farmers' Institute meetings held in the Ninth district, we extend the officers of such institutes our heartiest congratulations.

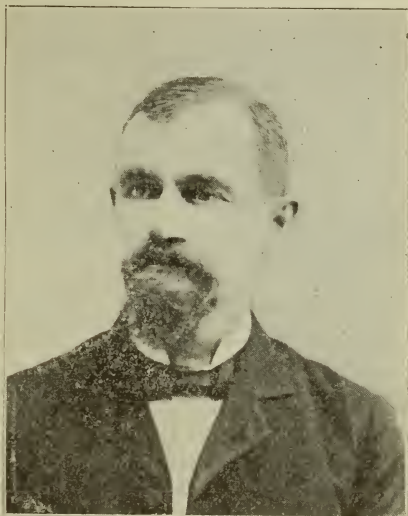
Tenth District: Mr. J. H. Cooledge, Galesburg, director, spoke as follows:

I have only got a good report to make of the Tenth district. Our six counties are all organized, and I doubt if any district in the State of Illinois holds as many good meetings as the old Tenth does. The meetings are all full of instruction. I will not describe any of them as we have full delegations from all of them except Stark, and he has been called away. We had a good meeting at Stark last year, and this year I had a report from there, and they had a good meeting, and they are going to make a success of it. The other coun-

ties I don't know but what they hold a meeting every week, they are so interesting. Our meeting was at Galesburg week before last. The attendance was probably more than we could seat in our court room. If we have not already reached that place, the Tenth will soon attain the head of interesting institutes.

Eleventh District: Mr. G. A. Wilmarth, Seneca, Ill., director of the Eleventh district, furnished the following report:

"The Eleventh district is composed of the counties of Bureau, LaSalle, Livingston and Woodford. County Farmers' Institutes have been organized in the counties of LaSalle, Livingston and Woodford. There is an earnest interest manifested in the institute work by the farmers in each county in which meetings have been held. Steps will soon be taken to organize an institute in the county of Bureau, in which good farmers' meetings have heretofore been held."



G. A. WILMARTH.

Twelfth District: Mr. J. M. Thompson, of Joliet, director of the Twelfth district, having been unavoidably detained, sent the following report, which was read by the secretary and ordered spread upon the record:

To the Officers and Members of the Illinois Farmers' Institute:

The farmers of the Twelfth district look upon the Farmers' Institute as one of the great educators of the times.

The stringency of the money market, the extreme low prices of farm products and the general unrest and solicitude in business circles, all point to important problems that must be solved in the near future by the agriculturists of this country. The causes of these general low prices and the manner in which we must meet the conditions that confront us as a class, can nowhere be as well and thoroughly discussed as in the Farmers' Institutes.

Large and extensive factories have been built in Europe for manufacturing agricultural implements. These



J. M. THOMPSON.

shops erected by cheap capital and cheaper help, sell cheap implements, to work cheap land, by cheap labor at 7 and 8 cents per day. Cheap is the word competing with the American farmer. These foreign products are being handled by our American ways, methods and machinery, thus making the competition sharper and cheaper. That we must meet this cut is evident, for there is no prospect for better prices in the future, except through the failure of crops or shortage in other lands. The farmer must, therefore, prepare for an era of low priced products, by cheaper methods of production and greater yields on less land. How it can be accomplished must be told by our experimental stations and the Farmers' Institutes. The institute work is progressing well and growing in the Twelfth district, which comprises the counties of Iroquois, Kankakee, Vermilion and Will.

This year institutes were well attended, and with good programmes full of interest have drawn, in most cases, large audiences that seemed well entertained.

The presidents of the institutes and other officers in these several counties have put forth energetic efforts and spared no pains or labor to make the institutes a success, which is admitted by the mass of farmers and other persons in attendance.

The Will County Institute more than met the anticipation of its warmest friends. The three days had an attendance of over 1,500 each day, and each day several hundred were unable to gain admittance.

One of the drawing features of this institute is the premiums offered on wheat, oats and corn, butter, bread, cake and canned fruits. At the close of the institute these things are sold to the highest bidder and always sell high.

Believing that the high character of the papers read at these institutes will continue, and the best expectations of the friends of this work be fully attained and realized, this report is respectfully submitted.

The twelfth district is not here represented by the director. Mr. A. A. Francis of New Lennox, spoke as follows: I am here from Will county not as a delegate but simply a substitute. I will say this for Will county, that our meeting was held in the largest hall and it was not sufficient. Our people are very much in earnest about this Farmers' Institute work, and regard it as the best thing they have ever had, and we desire that the farmers in the different counties should govern their own institutes. We believe thoroughly that the greatest good will come from local management. We are utterly astonished at the interesting and instructive papers that have been presented at our institutes by people that were comparatively unknown. We are heartily in sympathy with the Farmers' Institute work.

Tenth district, Mr. J. H. Cooledge: One thing I forgot to state for my district, and that is that it was unanimously for home rule.

Thirteenth District: Mr. F. M. Palmer, of Clinton, director for the thirteenth district, spoke as follows:

I can say that we have every county in the district organized. When we began we had four of the six and we have organized the other two, and we are holding our institutes. We do not have any house that is big enough to hold the people. I have not attended the County Institute meetings this winter because I was so busy, and what little time I could spare from my private business was put in for this institute work, but I think they are pretty well taken care of.

Fourteenteh District: Mr. Oliver Wilson, of Magnolia, the director of the fourteenth district, spoke as follows:



OLIVER WILSON.

We thought the fourteenth district was at the top in the institute work until friend Cooledge said they was. We have all the counties organized except one. We have held successful institutes. I have attended three out of the five of the County Institutes. No difference what the size of the room was in which meetings were held, standing room was at a premium throughout, and I will say that our district depends entirely on home talent.

Our president refers to the boys and girls. We have decided that the girls and boys are the best crop we can raise on the farm. We devote one evening to the boys and girls. We offer two prizes to the best recitation of boy or girl of school age. It went from the township to the county. We moved from the court room to the largest hall in town and it was more than full. I believe it is worth more than looking after to bring the boys and girls in. We must let them know that the future of the work

rests upon them. I have the utmost confidence in home rule. I believe that each county in this State understands what their interests are, and I believe that it is for them to say what shall be discussed and to discuss it. I have noticed some time when I would drop in the school room that the successful teacher is one that does the least work, but gets more out of their scholars. I believe the same thing is true here. I believe most any county in the State can get foreign talent and get a fine address but whether it is worth as much as the experience of the practical farmer. I say it is really marvelous that we have eighty-two or eighty-three County Institutes at work in the little time since the State Institute was organized. It is probable that some amendments may be put on the statutes that would help us, but let us guard it. As far as the State Superintendent of Institutes is concerned I say be careful what power you give that superintendent. I am a home ruler.



G. W. DEAN.

out what pertains to our welfare and the result is we are becoming a thinking people. We have found also that we have produced so much more than can be consumed. We have found that we have an under production rather than over. We have found that people consume five bushels of wheat annually where they used to consume four and a half bushels. We have learned that and many other things in the institutes. In my district the first day of the session of the institute that the ladies, children and the merchants come in, and I want to say that on the mother's knee the twig is bent that rules our future country and when we are gone all who attend our institutes will be better than we are. (Applause.)

Sixteenth District: Col. W. H. Fulkerson, of Jerseyville, in the absence of Mr. C. G. Winn, the director of the district, spoke as follows:

You have skipped the Sixteenth district perhaps because our director is not here. We are represented and we are hustlers. We have appointed Mr. Grout as the director for the Sixteenth district. We are for home rule in the Farmers' Institute work in this district and are going to fight everything that is against it.

I will say that as Mr. Winn is not here I will take his place. We have organized county institutes except in two counties. We think that the institutes are a good thing. They educate the young man and when they take our place in the future they will know just how to manage affairs. Nevertheless these institutes are a success and going on they make us more intelligent. The idea is to make every man, woman, girl and boy do their thinking and not let others think for them, so we discuss these questions. They tried to keep that back but we put it on them. When we get together we talk about the various things raised on the farm and go over and talk about the markets. But if you shut out the money question you shut out the market. We leave out partisanism. We want to become a united class. If we discuss these things freely we can come together. The bankers act as a unit and the millers act as a unit, but the idea is to divide the farmer and rob him. Let us come together. We want more money and cheaper money and when we come here to Springfield next twelve months some gentleman won't call a man down from Pike county like they did yesterday.

Fifteenth District: Mr. G. W. Dean of Adams, Ill., director of the Fifteenth District, spoke as follows:

Speaking of our district our Congressional Institute will say that it was held last week at Hamilton. The roads were bad and the weather was rainy. There was just four counties represented at that institute, but I want to say to you Mr. President and delegates here that we always have business at our meetings. We always have some pleasure, a declamation or song occasionally, but we wait for business. I find there is nothing of so much interest for farmers as the meetings of the institutes. There is no county in my own district that is not well organized. There is no county institute that I have not attended and in some counties as many as three meetings, and as a result we are in good shape. When we commenced we knew little about the business world. We did not say much about farming, but we know more about business to-day than we did twelve years ago. For example we farmers find it is pretty hard work to get money to come to this meeting. We farmers understand something about business now. We are finding

Seventeenth District: Charles F. Mills, director of the Seventeenth district, spoke as follows: When the State Farmers' Institute was incorporated by the act of the General Assembly two of the five counties in this district had organized County Institutes. The leading farmers in the other three counties were interested in the institute work and soon completed organizations that have more than met the expectations of the promoters. In every county in this district Farmers' Institute meetings are held each year and the attendance and increasing interest at each attest the excellent service rendered.

The officers of the County Institutes in the Seventeenth Congressional district have exhibitions in connection with their meetings of farm products, fruits, pantry stores, poultry, etc. The exhibitions interest many who would not otherwise attend or take part in the institute meetings. The managers of the County Institutes in this district spare no pains to prepare interesting programs, secure good speakers and by placing an announcement of the meeting in the hands of every farmer in the county never lack for attendance. The plan recently adopted by the officers of some County Institutes in this district of having the meetings held in the north, east, south and west portions of the county from year to year has more than met the expectations of the advocates of the plan.

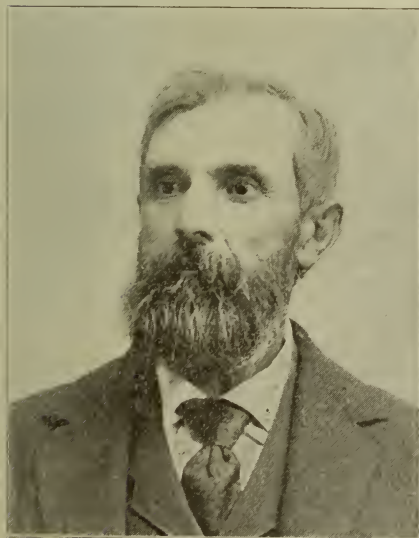
The Farmers' Institute work in this district is in good condition and growing in usefulness and popularity each year.

Eighteenth District: No response.

Nineteenth District: No response.



CHARLES F. MILLS.



L. N. BEAL.

Twentieth District: Mr. L. N. Beal, Mt. Vernon, director of the Twentieth District, spoke as follows: I made out a little report in my own way. I live down in the Twentieth District, running from the Illinois Central Railroad to the Ohio river, away down in Egypt, and I think we are booming. We are in favor of 16 to 1. We want sixteen good farmers to one bad one, and then we are going to take that bad farmer and persuade him to go to Arkansas. I think we can get him to go because we don't want him in our district. The counties in this district are: Wayne, Edwards, Hamilton, Franklin, Gallatin, White, Clay, Hardin, Wabash and Jefferson; total, ten. I attended each County Institute held. I have also taken my wife along as an example to the farmers to take their wives. A man that does not make a better boy out of his boy than he is is a failure. I think the same is true of the girls. We ought to make better men and women out of our children than we are. When we are doing that we are advancing. We have only held five institutes, and three

more to come late in the spring. The idea that I try to impress on our farmers is for them to come with their wives and children and get them interested, and that is the way to get them interested in the farm work. Owing to low prices farmers are discouraged and out of heart, but the outlook is encouraging. The farmers of this country were never left in the lurch, and will not be now. The first institute was held over in Wabash county. To give you an idea what we do in Egypt, there was a lady said yesterday that she believed we ought to discuss in the institutes the matter of home adornment and educating our children by sending them to a university through this part of the State. You will excuse me for saying that I have only two boys, and they are at the University of Champaign and are both taking the agricultural course.

The counties comprising this district are: Clay, Wabash, Edwards, Wayne, Jefferson, White, Hamilton, Franklin, Gallatin and Hardin; total, 10. I have attended each County Institute held and am on programme for three more to be held soon. Mrs. Beal has also attended these institutes and assisted by reading papers. She is also requested to attend the other institutes yet to be held. This is one drawback. Farmers' wives are timid about getting before an audience to read a paper. I try to use my influence to get the women folks interested, and also the farmer boys and girls.

Owing to the depression of business and low prices for farm product discourages the farmers, so they are out of heart. Yet the future outlook is encouraging, for when farmers meet to discuss the matter pertaining to their success, there is hope. The farmers of this country were never left in the lurch, and will not be now. So be it.

Wabash county: Wabash County Farmers' Institute was held in Mt. Carmel December 16-17, and as the roads were good we had a good attendance, a good programme and an excellent institute in every way. The only thing to mar the complete success of the institute was the death and funeral of an old and prominent citizen, which, of course, prevented some from attending. The officers being grangers, know how to manage such meetings as institutes successfully. I have no doubt but Wabash county was benefited by this meeting of the institute.

Jefferson county: Jefferson County Farmers' Institute was held in Mt. Vernon January 20-21-22, and was a decided success. The attendance was good all the time. We held our meeting three days and two nights, making eight sessions in connection with the institute. We held a fair or display of farm products in a vacant store room procured for that purpose—tables around the room and through the centre were all well filled with the produce of the farm. We had two show cases filled with butter and cakes, while one whole side of the house was occupied by coops of fine chickens, geese and ducks. The other side was filled with corn, potatoes, apples and all other produce generally grown on the farms of our section.

Wayne county: Wayne County Farmers' Institute, in connection with District Institute, was held at Fairfield February 3-4-5. The attendance was fairly good and the interest shown was such that I can say much good was done to the cause of advanced method of farming. Owing to the bad roads and rain and snow the attendance was not as good as would have been had weather and roads been better. This was also a cause that kept other county workers from being in attendance. I call this meeting a success to those in charge and in attendance got the good of it.

Edwards county: Edwards County Farmers' Institute was held in Albion February 11-12. This was a most excellent institute, although it rained and snowed. The roads were bad, yet the court house was full all the time. They call the county Little Brittain, because the population are mostly English. Be this at it may, they are good farmers and up to date and alive to what is their benefit. They wanted to avail themselves of all the help to be got from the institute. The home of the Hon. John Landrigan is here and he deserves much credit for what he has done in the interest of advanced method in agriculture and for the success of the institute in his county. He

is a man who will go even to his own inconvenience to assist in building up and advancing his neighbor farmers in better methods of farming. We need more such men.

The officers of Edwards county are hard workers in the institute work and will always try to advance with the times.

Hamilton county: Hamilton county will hold a Farmers' Institute March 5-6. The indications are good for a successful institute. They have secured Hon. Norman J. Colman, of St. Louis, as one of their speakers and expect Prof. G. H. French, of the Southern Normal School, at Carbondale, as another good man. These, with their local talent and Mrs. Beal and myself on programme we expect—well, we will make a success of it. We also have the assistance of John P. Stelle, editor of the *Progressive Home*, which is also as much as to say the success is assured.

Franklin county: Franklin county Farmers' Institute will be held in Benton in March. I am not sure as to date, but think March 24-25. They are making a programme and have asked a paper from Mrs. Beal and myself. Of course we will comply and assist them. They expect and are working to have a good time at their institute. They failed to arouse any interest among the farmers till a year ago, when they had a very successful meeting, and I predict another good institute this year.

Gallatin county: Gallatin county Farmers' Institute will be held in Ridgeway March 30-31. They have held only one institute previous to this one and they say they want some outside help. I will go and assist all I can. I see no reason why we can not make this a successful institute; the county is a good one and full of good people.

White county: White county has not reported to me as to when or where their institute will be held. They have held institutes before, and hope they will have another one this spring. The secretary reports to me that their executive committee has not decided yet as to the institute what they would do or when they would hold one.

Clay county: Clay county has not held any institute, and so far I have failed to arouse any interest. I have written to some thirty different men at six of their principal postoffices, also to their newspapers, but without success so far. I have a faint promise now of working up a meeting. Why this boasted county of big apple orchards don't or won't take interest in a Farmers' Institute I can't tell. I will still try to work up the institute cause in Clay county.

Hardin county: Hardin county is on the Ohio river and has no railroad. They have never held a Farmers' Institute. I have corresponded with some of their men who would like an institute and hope to hold one in the near future.

The President: The next order of business is the receiving of the reports of delegates in attendance at this convention and representing County Farmers' Institutes.

Reports were received as follows:

Bond county. Mr. John Hartley, Reno: Ladies and gentlemen.—It is a pleasure for me to come up here once a year and give a report of what we are doing in our community. Bond county is a very little county, but we have a few farmers that are not afraid to put their hands in their pockets in the interest of the institute work, because they expect to teach their children something thereby that will benefit them, and as I was coming up on the train it was on my mind that, if there was anything in being five thousand miles away from my native home, I am thankful that I am living in Illinois.

The institutes of Bond county, I believe, do more for the advancement of the farmers of Bond county than was ever accomplished by the Grangers or the F. M. B. A. The subjects discussed at the annual institutes have taught the farmers to take more interest in cultivating the home and taking a deeper interest in one another. In one instance a man planted five hundred fruit trees that would not have been planted if it had not been for the institute meeting, where it was demonstrated that it was for his interest to plant the

trees. We meet once a month, and get some of the best farmers to speak, and by this means we keep continually in the minds of the farmers that we expect them to meet with us, and place something on exhibition and help make the institute of 1897 better than 1896.

These are my partners, (pointing to a collection of apples). The birds of the air assist me to bring the fruit to perfection, and if we can get the professors at Champaign, with big salaries, to show us how to keep apples till February, it would do more good than to tell how to kill insects. As my time is limited, I will say there is in the apple all the medicine that nature demands. The doctor, when he sees a child eating an apple, knows that he is losing ten cents for a dose of quinine. No man at Champaign has told us what the function of the core is to that apple. The core of that apple serves a purpose similar to my liver to my body. Put a little piece of wax on the end opposite the stem, and you will shut its wind off. There is no air that comes in or out of the apple except it comes in through this end, and if you get that apple wet and put it down so the air strikes it, it is going to rot. The right way is to pick the apple in the afternoon, and you can thus keep a Rambo until June. I raised two thousand bushels when no man in our section raised twenty-five bushels. We get the sap through the stem, and in the course of time it changes to gas.

Now, then, the important thing is to get one another's ideas of the different ways of gathering fruit, so that when we fetch to our meeting a small basket of apples, each man has his idea how to keep them, and we would be learning something, and could keep ours long enough to market at the best prices. I sold two car loads of apples at sixty cents a barrel, and I lost more than I sold by rotting. If we had an idea how to preserve apples, there is more money in growing fruit than in raising wheat. I have sold fruit to Litchfield dealers for \$123 per acre.

DeWitt county. Mr. W. S. Harold, Wapella. Mr. Chairman, ladies and gentlemen.—I am from DeWitt county, and I am very much surprised to hear so many counties called and no response. I will just say for the institute work in DeWitt county, that I have been chairman of our institute for the two past years, and we are in very prosperous condition. We closed our sixth session in January, after holding a three days' meeting. I believe we take a little more time than counties generally do. We have a good interest manifested in our institutes, and we feel it growing every year. We make our institutes almost self-supporting. We keep a good supply of money in the treasury by putting in advertisements in our programmes, obtain considerable revenue. We understand that all the exhibits displayed at our meetings are donated to the institute, and the afternoon of the last day we have an auction sale of the products, etc., and it keeps us in a good financial condition.

I am surprised at the interest taken in Farmers' Institute meetings throughout the State. Our institutes are conducted by home talent principally, and we are very much surprised by the talent brought out, and we don't forget the boys and girls, either. We have papers that interests them, and it is developing good among them. We offer premiums for the best essay from the girls and boys up to 16 years of age, and this year we had another contest, including all up to the age of 18. Premiums are offered to the young ladies and gentlemen up to the age of 18 years of age for the best declamation, and we find that it is encouraging thought along that line.

DuPage county. Mr. H. C. Middaugh, Clarendon Hills: We want to get some speakers from outside of our own local towns, and are not able to get any. The thing was partially explained yesterday that they could not attend all the institutes in the State. If one institute gets a speaker, then the other ought to have one. Then the question is, who ought to have speakers? and we have decided that we will try to run our institute with home talent, and make it interesting as we can, and not depend on outside help or speakers to make the institutes interesting.

Edwards county. A delegate spoke as follows: "I want to emphasize something said awhile ago about the purpose of institutes. It seems to me

if I understand it right, that the purpose is to bring men together that differ, that don't understand, or is it to love and help the neighbor. Then any effort made in that line is an effort to help the farmer, but we believe that with institutes properly organized it is all right. We are not finding any fault with it. Mr. Beal is doing good work. He is raising it up. We notice that when we began to attend institutes it was a two-thirds house full, and when the next time for a meeting comes around it is overflowed. I want to confess that while many people are benefitted with talks and entertaining addresses, the man that does the best institute work is the man that puts good blocks of wisdom down you, even if he makes you ashamed of yourself. And that often comes from men that talk tremblingly, and the one thing you notice in the institute, the man of hesitating speech will throw chunks of wisdom that will set you to thinking, which is the basis of all good institute work, and will make you love your neighbor. Men don't want more politics or more elections, but want more affection to reach out and assist to make them better farmers. You should love them, not for their vote, but because you have a regard for them. Get the farmers to come to the meeting by giving them a taste of something good, and you will have that fellow out next year at the institute meeting with a dozen of his neighbors. Some talk about advertising institutes, and think that somebody has a better system. I believe the love and interest we have in our neighbor brings most men to institutes to hear experience that accomplishes good results. In arranging our programme the committee get together and go to work, and the fellow that makes the best suggestion is the fellow that gets up the best programme. If you want to get the farmer interested, get his wife and his sister to attend, and you will be astonished at what some of the fellows will get out of their mouths when they get to talking. Get the fellows that have only a little bit of a farm to attend, and make them believe that if they come to these institutes that they will receive valuable information. Make them understand the things of nature. Show them how to develop thought. More practical thinking raises them up, and when up helps them to stand up.

Greene County. J. K. P. Farrelly: I am from Greene county and I always feel good to meet with my fellowmen in institutes. I believe that our county is one of the oldest in the State. I don't know of a county in the State that has held institutes longer than we have. We have five towns in our county and we hold our institutes in first one and then another. Q. What year did you hold your first institute? I think it was 1884 or 1885. I think that was the year. The people of our county are taking a great deal of interest in our farmers' institutes, and I have learned a great deal by meeting with gentlemen here and talking over the interest taken in our farmers' institutes. I think our farmers, generally speaking, are timid and lack confidence in themselves, but there is a way to get them out and get them interested. Some times we have subjects that farmers could not appreciate. We have had subjects that they did not feel like discussing. I think we need subjects that come nearer to their business, their practice, than some that I have heard of. We have a great many subjects before our institutes that are criticised by our farmers. They say we don't know anything about such matters. I heard a gentleman in this crowd say that they could not get a gentleman from the University to come down and help them in their institute work. I think every county has enough talent in it if they will make use of it to interest every man and child in the institutes. It does not say much for the future if you have to lead them in institute work; with us they are coming as fast as they can. The young men will be better qualified than the old man. I feel sure that our young fellows are making an earnest effort—they will soon be leading us. They are too smart they will lead us in due time. A gentleman spoke of his two sons at the Univesity. That made me feel good when I thought that he had sons that could soon take his place in these institutes. But don't wait for some experienced man to come from the University, or any other county to take up the institute work. Pick up talent from your county that will interest the farmers of your county and the medium farmer should be included, and whenever you do this you will have the institutes full to overflowing in every county in Illinois.

Grundy County. W. A. Clarke, of Carbon Hill: I am from Grundy county. No other man is here to represent it. Some one has said the old men for counsel and the young for war. Our first institute was held about 1886, but for some time it seemed to languish and nothing was done untill last year. We reorganized and held two institutes. The first one that was held was not very well attended owing to the indifference of our farmers. For that institute we tried to get speaker from a distance and we failed, but we did the best we could and as the sequel shows, it was the best way. We had another meeting the same winter, two months later. At that time we said the Lord helps those that helps themselves. We don't pay the professors at Champaign to come to every institute and make them teach school at the same time. One don't want to have too many irons in the fire. If our friends send their boys down to the University we don't want them to drag the professors around to a hundred and two county institutes in this State. This year we have not held institutes in Grundy county, but our date will be Friday and Saturday of this week, to be held at Mazon. At the last institute the attendance was seven or eight hundred and we had a hall that holds about six hundred, and the crowd was clear down stairs and out in the street. That is the way we do in little Grundy, and we believe we will be able to get nearly all the townships interested in it.

Hamilton County. K. A. W. Kipp: All the report I have to make for our county is that there has not been that interest taken in the institute work that we farmers decided should be. In the last four or five weeks we had a meeting and arranged a programme for next month. We have ordered two thousand circulars printed and ordered them sent to every home in the county and we will rely on home talent. We are going to have the boys and girls that are soon to take our places ready to do the work.

Henry County. F. S. Malvin, Geneseo: I will simply say that Henry county has held six institutes. The last institute was held January 26th and 27th and the weather was very cold, the attendance limited. Our institute was made up of home talent. We had one outside speaker, Mr. Fursman, of El Paso. We are interested in the work and presume it to be in every way a success.

Iroquois County. Mr. Charles Foster, Watseka: Several years ago we tried to have a county farmers' institute. The farmers were suspicious of it. They thought it was something in a political line. This impression is beginning to wear off and we have magnificent institutes. Our institute was held for two days and the hall was not large enough to hold the people that came there to attend the meetings. Our entertainment was made up of home and foreign talent. Our friend Fursman, from El Paso, has done more to enlighten the farmers than any one else that has spoken in that county. He came to us a year ago this winter and I know more than fifty farmers that rode eleven miles over bad roads and he did not disappoint them. I have heard a good deal of favorable comment on the institutes and men that are going to follow his advice. Iroquois county feels proud of her institute. I am sorry our president is not here, as I am not a talker and would not be if I could.

Jefferson County. Mr. L. N. Beal, Mt. Vernon: We have not had any foreign speakers at our County Institute but I want to give you the titles of the papers we had in our last institute to inform you of the class of work we had down there. The best paper we ever had was by a farmer. His topic was this, "My Way of Farming." It was given in the forenoon and discussed for an hour and a half. This year a paper was given by a young lady on the "Farmer's Girl," that was worthy of the State Institute, the way she got up that paper and read it. We not only have the local talent in our counties but you have it in every county in the State. We open our sessions with prayer. We try to have some minister of the town to open our sessions with prayer and it recognizes our preachers, and part of the congregation go to hear Brother Smith, and we never do anything in our Jefferson County Institutes that we can not do after prayer. The afternoon session was the "Farmer's Home" by one of our farmers. The next paper was "Agriculture, the Past and Future." The second session was devoted to an address by the Mayor, a farmer, on the relation of the "City and Country." The second day's

paper was "Gardens and Gardening." The paper was discussed. The next paper was "My Way of Making Butter," by a lady out in the country. The next paper was "Poultry." The next paper was "Small Fruits." The next paper was "Hogs." The next paper was "The Farmers' Girl" by this young lady that I have just spoken of. The next paper was "A Farmer's Boy." Evening session "Pear Culture and Marketing Fruits." Papers on the "Horse and His Future," and another paper, "My Way of Raising Beef Cattle." The afternoon was devoted to some of the papers in discussion and the election of officers, and in addition to that, we had our exhibits. It was a kind of exchange of stock for exhibits. A Berkshire pig for the best pair of Barred Plymouth Rocks, and a Poland China pig for the best half bushel of corn.

Jersey County. Col. W. H. Fulkerson, Jerseyville: We had very bad weather and a very good institute. We want to change our time and we want to do it ourselves.

Knox County. Mr. O. L. Campbell, Knoxville: We had a good institute. The Institute was managed by a young man who was a graduate of the Agricultural Department at Champaign. He was so eminently qualified that the crowds grew until the people were standing outside. Our institute was a kind of a round up of the others in the congressional district. Our institute recommends that no new laws be enacted this year relating to Farmers' Institutes. We had among our speakers Mrs. H. M. Dunlop, of Savoy. Mr. A. G. Judd, of Dixon, and Hon. S. A. Forbes, of Champaign, on bugs, and Hon. E. S. Furman, of El Paso, was with us.

Logan County. Mr. Hostere: I want to say that we have been holding institutes in Logan county for eight or nine years except one year, and we don't want to have set programs but we want to change it from year to year. Last year we offered a premium for the best wheat, rye that was raised. I am going to try to see if I can get this gentleman that gave the corn lecture to give it in Logan county. We are practical farmers and we want to get him to interest our farmers in growing better crops of corn. Every farmer wants to know how to prepare his soil and cultivate his crops in order to know how to meet the dry or wet weather. We do not want to fall out with the State Institutions. I heard some remarks derogatory to the State University and I am satisfied that we want to do what is best for the institutes. Let us use both home talent and foreign talent, and not forget the fact that we must change the program from year to year.

Macon County. Mr. Morehead: I have a couple of programs of meetings held in Decatur, and the interest taken in the two institutes was very encouraging. We have quite a good deal of talent in Decatur for the institute work and we found that our people take more interest in home talent than that from abroad. We depend upon our own experience and I am glad that the other counties are doing the same. One of the features of our Institute was an exhibit. It was held the 9th, 10th and 11th of February. And one feature was the premiums offered by the merchants and other people for exhibits. The merchants offered a corn planter. I want to say that the exhibit would do credit to a State Fair. I say that we are in a flourishing condition and we are thankful for outside help but we want to be left alone and make the institute ourselves what we can.

Madison County. Mr. Norman G. Flag, Liberty Prairie, Ill.: The county of Madison holds a Farmers' Institute each year, and the meetings have been reasonably successful. Since the report made last year, a very good institute has been held at Highland, in September, 1896, in combination with a splendid Agricultural Fair. The number of *bona fide* farmers present was estimated at from 300 to 400, some from Bond county, attending. A large tent was used for the open air sessions, and citizens of Highland, gave us a hearty welcome. The program of Thursday, September 3, was as follows:

Music, Highland Band,

Address of welcome, J. P. Strenber.

Response, President Louis Spies, of St. Jacobs.

"How to make money raising wheat at present prices," by M. S. Link, Mitchell.

"How to keep up the fertility of the soil," by J. E. Miller, of St. Clair Co.

"Farmers' Institutes," by Ed. W. Burroughs, of Edwardsville.

Evening Session—Music.

"Education of Farmer Girl," by Miss Cora Anderson, of St. Jacobs.

"How to Educate the Farmer Boy to make him stay on the farm," by Charles J. Lentwiler, of Alhambra.

Duet, Misses Mahler and Chipron.

Trio, Miss Ida Mahler, Misses Jehle and Ruensele.

Song, by Maennerchor.

Friday, September 4, 10 a. m.

Duet.

"Pure Food," by J. M. Pearson, of Godfrey.

Afternoon Session—Music.

"Dairying for Profit," by A. J. Judd, of Dixon, Ill.

Officers elected for ensuing year:

President, L. A. Spies, of St. Jacobs; Vice President, F. Troechler, of Mitchell; Secretary and Treasurer, L. S. Dorsey, of Moro, and these officers together with J. S. Culp, of Bethalto, and E. W. Burroughs, of Edwardsville, form the Executive Committee.

Marshall County. A delegate spoke as follows: I will just say that we have just held a very interesting Institute in Marshall county for the last six years and our officers are young and middle aged men and men that are very much interested in the work. Our houses have been well filled and the time our institute was held it was very bad weather and it was very cold. The next to the last day standing room was at a premium, and we had quite an exhibit of both fruit and corn, and the merchants offered premiums and we had quite an interest. We expect to hold our institutes at the county seat. We have three different towns in the county. It has been growing every year and we expect to make Marshall county the banner county.

Mason county. A delegate spoke as follows: I believe our institute was held the 3d and 4th of February, and we had a man from Champaign and one from Normal, and our people was not so bashful as these people down here. If they said anything that we did not understand we got after them. I do not believe it was the fault of the people but the fault of your own people. The thing that will result to the benefit of these institutes is in asking questions. There is some other things spoken of here. A man from Jefferson county opens the meeting with prayer. We found that a very good thing. We found it one of the best features of the programme and we interspersed the programme with it. This year was the first time we have had an exhibit. Our object was to have a time at the institute to question these parties that procured the premiums, but our institute time was taken up. We did not have but four topics a day; two in the forenoon and two in the afternoon and one in the evening, and the discussions was such that it took all of our time. I think one thing that is the matter with the institutes is that we try to do too much at one time. Don't try to have corn, cattle and hogs at once. We had Mrs. Dunlop with a paper. Her topic was new. It was interesting, and the discussion that followed showed our people who were interested in that topic. I believe we can get friends up there to have papers and bring out the discussion of our people.

McLean county. Mr. S. N. King, Normal: The reports from McLean will be about the same as the reports of some of the others this morning. The board of supervisors have tendered us the use of the court room and a room adjoining for our exhibits. We had quite a successful meeting last winter and the court room was not big enough to hold the crowd.

McLean county. Mrs. L. L. Bell, of Holder: I will say that we had papers from the children and they were very good. We should encourage work of that kind.

Menard county. Mr. Fred H. Rankin, Athens: I will say that Menard county was organized two years ago and we have held two institutes and they have been strictly self-supporting and eminently successful.

Mercer county. A delegate spoke as follows: We had an institute at Viola the 21st and 22d of January. It was a success in everything. We had the best attendance we ever had and we are going to have another one this year, and we think we can hold that institute ourselves.

Montgomery county. Mr. A. A. K. Sawyer, Hillsboro: I want to say that Montgomery county has just as good an institute as any of you. We had just as good a crowd and we had all the house would hold, and some had to leave for lack of room, and we had a good time. We come to this meeting with three delegates. We all come to prove the assertion that we can learn a good deal by coming here. I guarantee that nobody will say I have not had a good time. I have enjoyed it all, and I hope that every director will go back home and when they forward their reports they will say that they have an institute in every county in my district. There is no reason why we should not impress on county institutes that we help them to carry out their will and when our will is expressed that they will carry it out.

Morgan county. A delegate spoke as follows: Morgan county has held three institutes in three years. The first was not largely attended. The second was more largely attended and the third was even more so. The last one we held in February in connection with what we call our Congressional Institute. We believe that in the future that our institutes will grow and become more interesting and a large number of our people will take an interest in it. We take a great interest in trying to induce our wives and mothers and sisters to attend and become interested. I believe that the hand that rocks the cradle moves the world. According to the statistics of the State Agricultural Society our loss in growing corn amounts to more than 50,000,000, and when we see away down in the vista when we have all passed away if this Farmers' Institute shall be conducted in such a way that if this conducted as it should be that our farmers will be a good deal better off.

Pike county. Mr. W. R. Willsby, of Pittsfield: Pike county borders on the west and is one of the oldest counties in the State, and it raises fine corn and hogs and is one of the worst counties in the State for free silver. We change the location of our institutes from one town to another. We are awake to this great undertaking. This last winter we sent out a thousand circulars. Speaking of the institute, I want to give you the figures and facts of the work. We sent out a thousand programmes and when we attended the convention the merchants said, "Here, we are interested in you farmers," and they gave a hundred dollars in premiums, and we had one of the finest institutes and exhibits ever held in the county.

Rock Island county. A delegate spoke as follows: We commenced in 1885. The second institute was held and I remember very well the people that attended that institute. Those persons consisted of the executive officers, the minister and the minister's family and one farmer. I went up myself where I could watch the door and once in awhile we would see a farmer come up and stick in his head. In 1886 and 1887 we had other institutes. The next one was held last year and was not very large. The next one was held at Port Byron and in the evening we moved upstairs. The next meeting this year was held down at Miland and in the evening the people were crowded up like sardines in a box and we had an interesting meeting. We have had Brother Fursman down to talk to us and Mr. Hamilton, of Galesburg, and the other papers that have been presented have been presented by the residents of the county. The most interesting paper, the best paper and the one that touched the affairs of the farmers like me was that prepared by the ladies. Don't forget that at least two numbers should be given by the ladies. We are all desirous that the Farmers' Institutes be continued. There is only one way to have them continue and that is by the farmers, farmers' wives and boys and girls contributing to the success of the meetings.

Scott county. Mr. A. P. Groat, Winchester: As is usual, the institute in our county is prospering. This idea of home rule and home talent, it occurs to me, is being carried a little too far. There is no county in this State that wants to surround itself by a wall and say to all the world that we do not want assistance from any one. The home rule theory is all right, but we can use to good advantage outside talent. Outsiders sometimes know the trouble we have in our county. The trouble is that when you approach a farmer and ask him to attend the Farmers' Institute they say, "I have been a farmer for ten or twelve years and you can't tell me anything new about it." Don't let us carry this theory of depending too much on home talent too far.

Whiteside county. Mr. L. Dodd, of Morrison: I will say Whiteside county is alive in the institute work. We have had a good attendance and have received good results. We have also organized township institutes that have done good work. You will hear from us later on.

Will county. Mr. A. A. Francis, of New Lennox: Our first institute was held March, 1888. We have held our fifteenth number. We have avoided a stereotyped programme. We have used Governors, ex-Governors and some outsiders of the State. We have constantly and studiously avoided a stereotyped programme and for the last five years we have held exhibits, and this year our premiums amounted to more than \$250.

Winnebago county. A delegate: We try to make every farmer and his wife and boys and girls believe and think that the Farmers' Institute of Woodford county belongs to them.

On motion a committee of five was appointed to draft resolutions expressive of the sentiment of the convention as to pending legislation, etc. The chair appointed as such committee: Messrs. B. F. Fountain, Foster, J. H. Coolidge, Fred H. Rankin and Herald.

Reports by congressional delegations were then called for from the even districts as to the election of directors for the ensuing two years as provided for in the act creating the Illinois Farmers' Institute.

Reports of delegates from the respective districts and the director elected from each district were filed and ordered spread upon the record, viz.:

SECOND CONGRESSIONAL DISTRICT.

Not represented by delegation.

FOURTH CONGRESSIONAL DISTRICT.

Not represented by delegation.

SIXTH CONGRESSIONAL DISTRICT.

Not represented by delegation.

EIGHTH CONGRESSIONAL DISTRICT.

Director elected 1897-1898, C. D. Bartlett, Bartlett, by the following delegates. Officers district delegation, H. C. Middaugh, Chairman; Willis A. Clark, Secretary.

County.	Delegates.	Post Office.
DeKalb.....	Chester D. Bartlett.....	Bartlett.....
DuPage.....	Wm. Hammerschmidt.....	Lombard.....
".....	H. C. Middaugh.....	Clarendon Hills.....
Grundy.....	Willis A. Clark.....	Carbon Hill.....
".....	L. N. Clitherow.....	Mazon.....
".....	Geo. W. Ridings.....	Morris.....
Kane.....		
Kendall.....		
McHenry.....	M. Zimpleman.....	Marengo.....
".....	Fred Hatch.....	
".....	R. J. Beck.....	

TENTH CONGRESSIONAL DISTRICT.

Director elected 1897-1898, J. H. Coolidge, Sr., Galesburg, by the following delegates. Officers district delegation, F. J. Melvin, Chairman; O. L. Campbell, Secretary.

County.	Delegates.	Post Office.
Henry.....	F. S. Melvin.....	Geneseo.....
".....	John Miller.....	Galva.....
".....	Wm. Colby.....	Atkinson.....
Knox.....	J. H. Cooledge, Sr.....	Galesburg.....
".....	H. M. Sisson.....	
".....	O. L. Campbell.....	Knoxville.....
Mercer.....	J. F. Holmes.....	
Rock Island.....	R. F. Fountain.....	Andalusia.....
".....	S. W. Heath.....	Milan.....
".....	Eli Corbin.....	Corbin Cliff.....
Stark.....	Wm. H. Winans.....	Toulon.....
".....	John A. Colgan.....	Wyoming.....
".....	John T. Fox.....	Duncan.....
Whiteside.....	L. M. Dodd.....	Morrison.....
".....	C. R. Powers.....	Sterling.....
".....	W. J. Johnson.....	Morrison.....

TWELFTH CONGRESSIONAL DISTRICT.

Director elected 1897-1898, F. I. Mann, Gilman, by the following delegates. Officers district delegation, A. Allen Francis, Chairman; C. E. Foster, Secretary.

County.	Delegates.	Post Office.
Iroquois.....	Isaac M. Hamilton.....	Cissna Park.....
".....	David Brumback.....	Danforth.....
".....	Charles W. Foster.....	Watseka.....
Kankakee.....		
Vermilion.....		
Will.....	Anderson Murdie.....	
".....	John Cortell.....	
".....	John Van Horn.....	

FOURTEENTH CONGRESSIONAL DISTRICT.

Director elected 1897-1898, Oliver Wilson, Magnolia, by the following delegates. Officers district delegation, C. C. Burt, Chairman; G. G. Hopping, Secretary.

County.	Delegates.	Post Office.
Fulton.....	C. E. Burt.....	
Marshall.....	G. G. Hopping.....	Havana.....
Mason.....	S. F. Porter.....	Mason City.....
".....	J. C. Cleveland.....	Easton.....
Peoria.....	O. B. Wilson.....	Magnolia.....
Putnam.....	Howard Williams.....	Putnam.....
".....	A. W. Hopkins.....	Granville.....
Tazewell.....	German Bailey.....	Delavan.....
".....	J. O. Jones.....	".....
".....	Ralph Allen.....	".....

SIXTEENTH CONGRESSIONAL DISTRICT.

Director elected 1897-1898, A. P. Grout, Winchester, by the following delegates. Officers district delegation, W. H. Fulkerson, Chairman; A. C. Rice, Secretary.

County.	Delegates.	Post Office.
Calhoun.....	C. L. Wood.....	Hamburg.....
".....	R. B. English.....	Harden.....
".....	J. T. Imkoyle.....	".....
Cass.....	C. W. Holnback.....	Rockbridge.....
Greene.....	J. K. P. Farrelly.....	Dunn.....
".....	J. G. Pope.....	Kane.....
Jersey.....	E. A. Riehl.....	Alton.....
".....	T. S. Chapman.....	Jerseyville.....
".....	Thos. F. Ferns.....	".....
Macoupin.....	A. C. Rice.....	Arnold.....
Morgan.....	W. H. Rowe.....	Jacksonville.....
".....	James Sturtevant.....	".....
Pike.....	R. W. Willsey.....	Pittsfield.....
".....	Sidney McFadden.....	Time.....
".....	M. M. Gasbury.....	Griggsville.....
Scott.....	A. P. Grout.....	Winchester.....

EIGHTEENTH CONGRESSIONAL DISTRICT.

Director elected 1897-1898, A. A. K. Sawyer, Hillsboro, by the following delegates. Officers district delegation, F. Dresser, Chairman; Norman G. Flagg, Secretary.

County.	Delegates.	Post Office.
Bond.....	John Hartley.....	Reno.....
".....	S. Lee Elliott.....	Sorento.....
".....	F. Dresser.....	".....
Fayette.....	Norman G. Flagg.....	Liberty Prairie.....
Madison.....	E. C. Richards.....	Hillsboro.....
Montgomery.....	A. A. K. Sawyer.....	".....
".....	E. J. File.....	".....
Moultrie.....	".....	".....
Shelby.....	".....	".....

TWENTIETH CONGRESSIONAL DISTRICT.

Director elected 1897-1898, L. N. Beal, Mt. Vernon, by the following delegates. Officers district delegation, A. J. Cook, Chairman; W. S. Chaney, Secretary.

County.	Delegates.	Post Office.
Clay		
Edwards		
Franklin		
Gallatin	Ed Lawler	Equality
"	H. Ives	Shawneetown
"	J. A. Trousdale	Elba
Hamilton	M. A. Hooker	McLeansboro
"	H. A. W. Kipp	"
"	John C. Hall	"
Hardin		
Jefferson	L. N. Beal	Mt. Vernon
"	W. S. Chaney	"
"	A. J. Cook	Opdyke
Wabash	F. C. Seiler	Mt. Carmel
"	Jacob Zimmerman	"
"	C. C. Linkenfelter	"
Wayne	Geo. Skelton	Fairfield
"	H. W. Essington	"
"	E. A. Rankin	"
White		

TWENTY-SECOND CONGRESSIONAL DISTRICT.

Not represented by delegation.

On motion the convention of delegates adjourned *sine die*.

F. M. PALMER, *President*.

CHARLES F. MILLS, *Secretary*.

STATE HOUSE, SPRINGFIELD,
WEDNESDAY, FEBRUARY 24, 1897—1:30 O'CLOCK P. M.

The Institute met pursuant to adjournment, President F. M. Palmer in the chair.

The President: The Illinois Farmers' Institute will please come to order. This session of the Institute has been set apart for the consideration of subjects in which the farmer's wife and daughter are especially interested, and it is fitting that the meeting be placed in charge of the ladies. It gives me much pleasure to introduce Mrs. S. Noble King, of Normal, as your presiding officer.

Mrs. King: We will open the meeting this afternoon with a piano solo by Mr. Herbert Owens, of Springfield.

Mrs. King: We will next have prayer by Mr. C. C. Miller, of Marengo, Ill.

Mrs. King: I am sure that I voice the sentiment of all the farmers' wives and daughters who are interested in these institutes, by the voluntary offering that has come to us this afternoon from the officers, to take this afternoon for the discussion and consideration of subjects pertaining especially to the woman's department in the farm and home. It has been said that "he who could make two blades of grass grow where one grew before" is a benefactor to his race. But he is three times a benefactor who can benefit the moral—the spiritual morals.

So it seems to me a red letter day when the earnest thinking women from the progressive farmers' families meet to discuss ways of improving and uplifting the rural class. Especially for discussing the question as to how the farmers' boys and girls can obtain a higher education, and the culture—the social and mental culture—demanded by modern life. It seems to us that it is a desirable thing for the farmer's home to be the model home of the country, and we hope that the day is not far distant when the rural, the country home, will have that degree of culture and refinement that it will be the ideal home of the American people.

We necessarily must vary our program a little to-day because of the necessary absence of one of the young ladies who was to take part, and instead of her paper coming first on the program, I will ask for the paper by Hon. Mr. Bullard on "Modern Conveniences for the Farm and Home."

MODERN CONVENIENCES OF THE FARM HOME.

By Hon. S. A. Bullard, Springfield, Ill.

In the city residence where live people of moderate means, it is always expected that the usual conveniences that are necessary to make home life easy and comfortable are provided. We have come to look upon the city as laying these things at our doors, and that we are not appreciative of the privileges of modern civilization if we neglect them. Thus what we counted as luxuries a few years ago are now looked upon as necessities, and nearly all good class city houses are provided with them. Even the houses that are to be rented must have such conveniences if good tenants are expected. The processes through which this state of things has come to exist, have really been a sort of growth, slow of beginning, but more rapid after good root has been established. And yet in some places in our cities the process of development seems hardly to move. Thus it is but a few years ago that a large city in a neighboring state reported, through its engineer, that there was a population of 40,000 people in one part of the city that was not provided with underground drainage. All the filth from that vast number of people either was absorbed by the soil on which they lived, or ran in the gutters of alleys and streets reeking with offensive odors. While there are but few places now where such conditions exist to such an alarming extent, there are many where they exist in much less degree.

If the luxurious conditions of our city homes have been slow to develop when the municipality made them easy to obtain, can it be wondered at that the country home with luxurious appointments has scarcely been thought possible by many of our thrifty and successful farmers. The truth is that we often helplessly depend on the city municipality to furnish us things in the city that under ordinary circumstances we can easily provide ourselves. And many of those who have homes in the country have so schooled themselves to looking at many things as impossible to obtain, which might easily be had, that they have ceased to wish and hope for them. Let me use an illustration to show what I mean. In a city of 35,000 inhabitants, the water works plant will cost the city \$350,000; that is, \$10 for each person in the city. This cost for a family of five amounts to \$50. But as about only one half the people of a city use water, the actual cost is laid on that half. Thus the first outlay for a family of ordinary size to have water in a city house is \$100. Now for the maintenance: A certain charge is made for the water, running from \$3 to \$5 for each cock in the house, yard or barn. The cost per year, then, reaches probably \$30 as a constant tax upon the consumer. Now in the city residence this original outlay of \$100 is borne without a thought, and the annual water tax is accepted as a matter of course. But I think without doubt that an outlay of \$100 and an annual expense of a corresponding amount would provide and keep in water most any of our farm houses in the State of Illinois. Then where is the advantage of the city over the country? I believe that there is very little advantage that the city has over the country in providing the modern conveniences for the home. In the city we have to pay for them and of

course take them; in the country we can take them or not, and often do not from the supposition that they must necessarily cost much more than they do elsewhere. It is a false view that we sometimes have of the country, and I hope by this paper to in part dispel that view.

Having thus intimated what I wish to say, I will proceed to discuss briefly some of the advantages and conveniences which may be easily arranged in any house, whether in the city or country.

We will first consider the heating apparatus. No first-class house ought now to be erected without provisions for heating it from one central point in or near the house. So common has the furnace become that I feel that it is hardly necessary to discuss the methods of such a method of heating, but will rather take the time I have for the consideration of this topic, to a discussion of methods and details. The warm air furnace is the cheapest and most commonly used. Such has been the improvements in manufacture and design in the last few years that the warm air furnace gives now very general satisfaction. There are some faults with them, however, which are chiefly due to mistakes in putting in. Many times the planning of the furnace and the setting up, particularly in old buildings, are left entirely to dealers in furnaces who do not claim to design their work in a scientific manner, although they are good, practical workmen and understand in a general way what they undertake to do. The owner usually in such cases requires a guaranty that the furnace will do the work satisfactorily and he looks no further than his guaranty.

The chief fault with the warm air furnace is the difficulty of heating the rooms on the side of the house against which the wind is blowing. How often it is that all the rooms on the windward side of the house are cold. This trouble arises from improper planning. If the fresh air duct to the furnace is located so that the force of the wind at any time may be carried directly to the furnace, the rooms on the windward side of the house will be easily heated. As the prevailing cold winds in our climate are from the northwest, west and east, you will notice that cold air ducts should have two inlets, one from the west and one from the east, in order that the conditions I have mentioned above may be satisfied. And yet we often see furnaces that have the inlet to the fresh air duct on the south or east side of the house only, and then wonder why it is that the north and west rooms of the house are cold when the wind is from those directions.

Another cause of failure in furnaces is the lack of proper ventilation. It is evident that air can not be forced into a room unless a like quantity of air is removed. If no adequate provision is made for removal of the air then warm air can not be carried in, and heating the room by a warm air furnace is impossible. Were it not for the fact that there are no perfectly fitting windows and doors in most residences, it would be impossible to heat them with warm air furnaces; because there is not one house in twenty heated by a warm air furnace that has provision made for removing the foul air. Now furnaces do tolerably well without such provision, owing to partial ventilation through loose windows and doors, but nothing like perfection, or even satisfaction, may be attained when such provision is lacking. Such being the case, good judgment would always require that good ventilation be provided. With these two faults of the warm air furnace provided against, such furnaces can not help but give the very best satisfaction.

In heating by steam or hot water little difficulty is experienced except from lack of ventilation. That objection is very serious from a sanitary standpoint, though the heating is satisfactory. No house should be heated by steam or hot water without provision by which pure air may be easily and constantly passed into the rooms. As heating engineers are not necessarily sanitary engineers, they generally consider their work well done when the premises are heated satisfactorily. It becomes necessary, then, that some one who is capable of planning the work of heating a building with a view to all the needs of the occupants should have charge of the work, if the health of the occupants is to be conserved and the comfort of all accomplished.

I have often had it stated that cellars of country houses where the furnace is used are rendered useless for keeping vegetables and fruits. While this is

serious if it can not be overcome, it can be overcome in nearly every instance. Heat, as well as cold, can be fenced out, and a cold storage room can be provided with little or no expense in every cellar. I seek to obtain three things for such a room: Interior walls practically heat proof; ample heat protection from warm air pipes in that room, and outside door or window ventilation. In this way a regular cool temperature may be kept in any compartment of the cellar sufficiently large for all needs.

I suppose that no country house of much pretensions to comfort is complete now without the ice-chest or refrigerator. It is far better to have a regular cooling room made in a residence which can be used the whole of the year, but provided with a means for using ice in the summer to reduce the temperature. I would put this room in the house, or adjoining the house, so that ice may be put in from the outside, but which can be reached with few steps. Also that it be large enough to easily contain all that it is necessary to keep cool or of regular temperature in summer, including eggs and lard. With such a room the consumption of ice will be a minimum and much more use obtained from it than with a box or refrigerator. The room should be packed four inches thick with mineral wool on the sides, ceiling and floor, and should have a thick, packed, spring door, and a window with two sashes filled with glass, and an air screen on the inside. It may vary in size according to necessity, from an area of twenty-four sq. ft. to sixty sq. ft. or even larger.

One of the most important and useful conveniences of any home is provision for the use of water. Water is now provided by every city and by many small towns and villages. It can in Illinois be provided easily and economically for the country house. Every house has its well and cistern from which an abundant supply of water may be had at all times, and every house is located so that drainage from the house can be easily provided for. Having these two, all details for the fullest use of water in the house may be determined. To those who do not know the advantages and comforts of water in the house, abundant water supply in the house can not be fully appreciated. They are much like the city cook who never experienced the blessedness of having all the milk she could use in her kitchen. We have all been thoroughly trained in self-denial and are content with conditions, which under other circumstances we would be restless under.

The convenience of the kitchen sink and hot and cold water are possible in every country home. The cistern pump at the kitchen sink, and even the well pump, can be easily accomplished. The comforts and utility of the bath room with hot and cold water to the bath and to the wash bowl, cost no more than in the city house and are as certain of operation. The water closet in the house, with its conveniences and sanitary perfection, can be had as easily outside municipal limits as within. The laundry, with cistern water, well water, drainage, wash tubs and slop sink are all as easily provided in the country house as in the city. I have no doubt that many here who hear me have many of these conveniences in their homes, and some, perhaps, have all of them, but there are many most excellent country residences where there are none, and where the occupants have been led to suppose that it is impossible, with anything like economy, to have them. To them I come with a word of cheer.

The force of water is obtained by a tank or reservoir in the attic which supplies water to all the fixtures in the house, and to the heating tank and water back in the kitchen range, which supply hot water to the several hot water fixtures. The water is supplied to the reservoir in the attic from the well most economically by a force pump operated by a wind-mill at the well. The water can be piped a long distance if it is thought best for any reason, to have the wind-mill on some part of the farm distant from the house. In case of wind power, the tank or reservoir should be of size to hold twenty-five barrels or so, so that the water supply would last several days without pumping. It does not need a separate pump to supply the house, but a force pump can be put in the well which can be used also for a common stock pump when not forcing to the house. When there is no power to be applied to pumping then the water must be forced up by hand. This requires time and labor almost every day, and should be done regularly as any other duty requiring daily attention is performed. Usually the tank is provided with well water,

but sometimes cistern water is preferred. In such cases the force pump may be placed in connection with the cistern in the same manner that it is usually applied to the well. But as cistern water is not so plentiful as well water, a better way is to connect the reservoir with the well, and then have a water motor pump that will force cistern water to the parts of the house where you want it. Another good reason for this method of work is that if cistern water fails at any time, the pipes may be arranged to connect with the reservoir for supply to the cistern water outlets. This connection of the cistern water can easily be done; thus rain water may be supplied to the wash bowl and bath tub, but well water to all other connections. Cistern water may be run also through the kitchen heater, so that all the hot water in the house will be cistern water, while to the water closet, kitchen sink, and other points, well water may be provided.

In connection with any system of water works is the necessity of providing for the wastes. This requires a good drain, both in the house and outside of it; also necessary traps and vents connected with the different fixtures. Almost every house in the country is located on an elevation that will ensure good drainage, both for the cellar and water fixtures. The drain may have to be run some distance in order to reach ample outlet, but that is no objection except in the matter of cost. Should an outlet for any reason not be possible, provision may be made by use of a cesspool. This is a pit dug in the ground to some depth and walled up with brick, and into this is run all the drains. The moisture will soak away in the earth and the solid matter remain, which is removed from time to time. In any case the drain pipes inside the house should be of solid cast iron with joints thoroughly caulked with lead, and those beyond some distance from the house should be best glazed sewer pipe with joints filled with cement. It should be provided also that all the waste pipes in the house and to some distance outside, say twenty feet, should be easily accessible to a passage of free air at all times. When a flow of water occurs in any waste pipe it causes a movement of air in the pipes, and thus forces a ventilation of the pipes if a free current of air is provided for. This ventilation is absolutely necessary to secure a good sanitary condition for the house, and if the work be well done, and thorough ventilation provided for, the house is perfectly secure against disease germs arising from decaying matter in the drain.

The laundry is another feature in the house I will refer to. Laundry work is a regular work in any household and provision should be made to reduce the drudgery of the labor whenever possible. The bringing in of water and the removal of waste water should never be done by carrying. The one can be done by the pump from the cistern and pipe from the reservoir, and the latter by the house drain through the slop sink. Laundry stationary wash tubs, made of some mineral material entirely non-absorptive, should be used, and a drying apparatus for use during the winter can be easily provided. It is entirely feasible to run the washer from water from the reservoir through a water motor if water is plentiful. Thus it can be provided that to do a whole wash very few steps need be taken and no hard lifting or carrying of heavy loads. By a careful planning of resources it may be possible to do the week's wash on Monday with as much satisfaction and with as little fatigue as the Saturday's baking.

The lighting of the building is a matter of no small importance. The providing of lamps in every room in the house is some expense, and the labor of their proper care makes a large burden additional upon the housekeeper. Gas may be had in the country house as cheaply and with as much brilliancy as the gas of the cities. The piping inside the house is done in the ordinary way. The gas supply is provided by a reservoir in the yard, not far from the cellar wall, where at least one barrel of gasoline may be deposited at a single time. Air is forced through the reservoir by a weight attached to a fan, the weight generally being placed in the cellar. The air in passing through the gasoline becomes saturated with the volatile elements of the oil and is carried thence into the pipes of the house. The gas burns exactly as the ordinary coal gas does and has a bright, strong light. It can be used in the gas stove in the kitchen and in fireplaces throughout the house. It is absolutely safe and has none of the disagreeable blowing that occurs in a gasoline stove. It

is cheap also, as the oil may be bought by the quantity. The ordinary gas fixtures are used, and there is no trouble or attention required but to see that the tank is constantly supplied with fluid and that the power is constantly applied to the fan. Oil is supplied once a month, or once in two months, according to the amount used, and the weight which runs the fan may be wound up once a week.

I have spoken of these matters as being important in making the country home comfortable and attractive, and calling for less slavish labor than we ordinarily meet with in country homes. There are many other features that go to materially lessen the burden of labor, but people so differ in regard to the minor conveniences that I am sure that not half the persons before me would agree with me were I to advocate them. There is only one that I will mention. It may enable us to see the differences of opinion here, if we do not get material advantage from it. I have in mind the planning of the kitchen with its accessories. I am of the opinion that the great kitchen of our grandmother's days is not now desirable. It had its uses in the long ago, but is outgrown by the present generation. The kitchen should be small and well ventilated, having work table and kitchen utensils close at hand so that no number of unnecessary steps need be taken. I would have it so well ventilated that in summer you could hardly tell that a cooking stove, baking hot, was in the room, though you could almost reach it. If two persons habitually work in the kitchen together, I would make it larger than if only one usually did the kitchen work. Pantries, bins and closets I would have adjoining and so located that a person will have to use her mind in her work more than hands or feet.

But there are good housekeepers who will still believe and insist that a big kitchen is the greatest blessing about a farm house. It is no wonder that when night comes, after a day in the kitchen, that the physical organization has so spent itself in perspiration and been so overtaxed in transporting itself about the premises that an hour of animated and edifying conversation, or reading some good author, or playing some musical instrument, is utterly impossible, and that as soon as darkness comes and labor ceases the tired body seeks relief in complete repose.

And now, I would like to ask, what practical results will come from the presentation of this paper? I had in mind in preparing it that some one here might be enabled to see how the home may be made more convenient, brighter and more attractive; that it may be more of a home than a workshop or place of labor. We hear much these days of the sweatshops of the cities, but we hear little of the sweatshops of the country—veritable sweatshops, too. Were it not for the pure air and bright sunshine of the country, the sweatshops there would outrank in mortality the worst of the cities.

The home should not be to the housekeeper and mother a place to labor alone, but a place to live, a place to live a life of joy herself, and to rear her children to the bright, happy, sparkling life we so earnestly hope they may live. The home is the place to make thoughtful, earnest, patriotic and virtuous men and women of our boys and girls, and the more we can reduce the drain on the physical systems of the parents, due to dull labor, the better will the parents be able to accomplish for themselves and their children what they see is the best interests of all.

But there are some here who would gladly have and enjoy what I have pointed out as modern improvements in country homes, but who think, after all, that they are so expensive that it is out of the question to obtain them. To such allow me a word of reasoning. You know of many of your friends who have left good country homes and gone to the city or town where they can have more of the conveniences of modern life. There are many other things in the city that are attractive to people, so that I can not enumerate them, and perhaps they are more influential than the home conveniences they find there, but I wish to confine myself to the home conveniences alone at present. Such persons have gone to the city and bought them or built them a home. They paid one thousand dollars perhaps for a lot (about one-eighth of an acre), and erected on that lot a modern house and live in luxury surrounded with all the modern conveniences of a city home. Suppose those

friends of yours had taken one-eighth of an acre of their farm, or one-half an acre, which is preferable, and made it worth one thousand dollars by improving it as a building site. Suppose they had drained it at great expense, put in large cisterns, constructed a good well and provided power and pipes for an excellent water supply, put in a perfect gas plant and other necessities, so that before beginning to build their house their site would represent an investment of one thousand dollars. Then erect their house thereon at the same cost and with the same conveniences of their city home. I would like to ask any candid person, that so far as the home and its comforts are concerned, whether the country house, with its orchards, barns, flowers, grass and pure air, is not the pleasanter place to enjoy the remnant of life left us. And where is the great expense of having them in the country? It is no greater than in the city. In the city they are counted a necessity, and we are willing to pay what they are worth to get them; in the country they cost no more, but we have got in the habit of not paying for them and doing without them until we have taught ourselves to believe that they are not for us.

Now as to our duty. We are empowered with the gifts of thought and reason, so that by study and invention and experiment we are enabled to gradually develop labor saving machinery and a condition of things that reduce the tax of physical energy upon each of us very materially. These gifts are divinely given and that high authority will hold us responsible for their use. If there is a purpose in the gifts, it is the moral duty of us all to work for that purpose. Thus we have no moral right to deny ourselves the use of labor saving machinery, and as little have we the moral right to refuse those conditions of human life within our reach that will free the body from weariness and enable the spirit with unincumbered wing to enjoy itself among high things.

It is difficult for the rural communities to hold their components in the country, especially the youthful and growing generation. There are fascinations in communities of men that will always attract and draw men to them, and it becomes the duty of every rural community to advocate and demonstrate as fully as possible that in material enjoyment and satisfaction the country may not be a whit behind the city or town. And should this be thoroughly understood and believed by all classes of people, one of the problems in the question, "Why do country people remove to the cities?" would be solved, and its solution would add to the comfort and enjoyment of many burdened people, and to the intelligence and strength of the populace and through them to the stability of our government.

Mrs. King: We will next listen to a solo by Dr. C. C. Miller, of Marengo, president of the State Bee Keepers' Association.

Mr. Miller: The culture and polish you recognized in the one who played the beautiful solo a while ago, comes to play in contrast with the one with the hay seed in his hair.

Mrs. King: We will now listen to a baritone solo by John H. Ruckle, of Springfield.

Mrs. King: We will now have the pleasure of listening to a paper of Mrs. Bedell, "Atmosphere of the Farm Home."

THE ATMOSPHERE OF THE FARM HOME.

By Mrs. S. S. Bedell, Holden, Ill.

There are many ways of conducting a home, and the "way" a matter of opinion, but the result is an evident truth which confronts us, and none can gainsay it. That I may give my "opinion" of it is a right accorded every human being, but that I am just is beyond my power to say.

My thoughts and experiences are not yours. Circumstances alter cases. That we can not all see and think alike is a blessing.

The atmosphere of the farm home must embody all that pertains to its every day life, the moral, social and educational culture, its peace, joy and comfort; and its best conditions are good health, congenial companionship,

pride, energy and happy, contented dispositions. Every home has its trials and tribulations and *vice versa*. There is a time to be merry and glad and sick and sad. It comes in all our lives. But let that home be where it will, however beautiful and grand, humble and lowly, whatever its surroundings, around it hangs an enchantment which lives with us through all time. And with the poet we sing, "Be it ever so humble there is no place like home." Around it clings every fond memory, every cherished endearment. Here, has the young farmer and his fair bride begun to unravel the mysterious threads of life. Here have they seen the sunshine and shadows. They have reared their family and seen them one by one leave the roof-tree, some "to that bourne whence no traveler returneth," others to tread life's stormy path to fortune or fame, while another, perhaps, guided by no friendly hand, traveled the broad road to sorrow, shame and destruction. Yet, every home has its joys, its griefs, its blessing; every home its toil, care, anxiety and reward. Life is never all peace and plenty, or all fret and worry, but "as we sow so shall we reap." The atmosphere of the home is just what we make it. It does not necessarily depend on one member of the family alone to make it pleasant, but "one member alone" can make it an *inferno*.

The ruling spirit is mother. She makes the home, to a greater extent, more than the father; yet it takes both to complete its happiness. But there are other essentials besides the husband and wife, and one of the first is, good health; second, perfect trust and love for one another. No woman should ever marry a man she can not esteem above all others; and no man should take for a helpmate one he can not aspire to as an equal, morally, mentally and physically. Some may question this assertion, but take in consideration the fact that society draws the dividing line; and no matter what a man's past has been, he can walk into your homes and choose its fairest bud, and you will humor me. God grant that woman will see the day when she will demand her equal; and I appeal to mothers to rear their daughters to something better, higher and nobler, than throwing their lives and happiness away for the mere sake of escaping being called an old maid. Rear your boys to hold sacred above all else the spotless purity of their character and name. Respect yourselves and others will honor you for it. It is your duty to God, yourself, and mankind to raise the standard of civilization. When you have met these requirements, the atmosphere of your homes will never be invaded by dissensions or rebukes, sarcasms or invectives.

Your children will not need admonition to know right from wrong. Your faces will reflect the purity, goodness and love of noble, just, and sympathetic hearts.

There is much in heredity, and the first steps towards a pure life, good health and happy homes, must begin now, with the grandfathers and grandmothers of the next generations. A revolution can not be instituted in a day. neither can we reform a nation in one generation; but time has, and can again, work wonders. Each one of us have our part to perform. Again, the atmosphere which pervades the home will expand and grow until it permeates the homes by which it is surrounded, and you will elevate those with whom you are associated.

The morality of a family depends upon its correct living, training and discipline. Every child, to some certain extent, is a looking-glass of its progenitors. It will give notice of these attainments very early in life; and, if they are accomplishments not to be desired, care should be taken to eradicate them—but this must begin with its first breath, by love, patience and firmness.

A child's perceptions are very acute, and are given them to use, and from the day of birth until death claims her own, it is a scholar of earth and the world its teacher. The finer these perceptions the higher the grade of its education; but, in which direction is for your consideration, guidance and control. There is nothing more susceptible to impressions, and the first imprints are the more lasting. This is proven by the fact that our earliest remembrances are the more vivid to us than at any other time in life; old age will become a child again, in memory, and live over the days of its first conceptions. Too many leave the training of their children to that which surrounds them. There are many families whose children run the road, harass

the neighbors, etc., for want of parents to do their duty, and all because they are tired of their noise, and want a little peace. No wonder children grow up ill-tempered, wayward, and untrustworthy—that they learn to lie, cheat and steal, and often become a menace to the neighborhood.

No wise parents will allow their children beyond their, or some reliable person's oversight, until they have arrived to years of some judgment, or until their lessons of obedience are thoroughly established. Don't understand me that I believe in severity; but a child should obey from motives of love and respect. There is no love like a parent's, so abiding and true; respect it for the good that is within you—your reward, an untarnished heart locked full of remembrances too sacred to be intruded upon. When we do right we are always happy. It is oftener ourselves that are to blame than others, when we feel slighted, offended and irritable. If our hearts are full of love and our motives pure, everything will seem bright, beautiful, and congenial. It would take pages yet to tell the duties of child to parent and parent to child, but one little word controls it all, and that is—love.

The atmosphere of the farm house is not always the pleasantest. It is a life of labor and oftentimes made one of drudgery, and when so, good health, its first essential, must sooner or later give way, and with it the happy, contented disposition; for show me a mother worn-out and happy; sick, yet agreeable: oppressed, but contented, and you will as soon show me water running up hill. The mother should be provided with things to make life easy and not a burden, if you would always see the smile of joy and love beam from her face, for from early morn till late at night must tired feet keep traveling, traveling, and weary brain still plan and contrive, and hands execute, to make all ends meet. Yet "Every cloud has a silver lining," and while all is not sunshine, there is a free, glad, independence about the farm home not found elsewhere. Here the sweet songs of the birds, the chirp of the crickets and katydids, the differently uttered sounds of each animal connected with the farm, amid the silent voices of nature, combine to make life a dream, compared with the confusion, turmoil and bustle of the city. How many of you, if you could be placed back in the old farm kitchen with mother, father, brothers and sisters, would exchange places with the millionaire at the theater to-night? Oh, those old memories! How they throng back upon us in the years after we have left the old farm home to tread the paths of the cold, relentless world to seek our own destinies. Sacred memories! locked in the chambers of our hearts. No wonder we cry aloud with the words of Elizabeth Akers Allen:

"Backward, turn backward, O, time in your flight,
Make me a child again, just for to-night."

Many long years have passed since most of us have left the parental roof, but none of us have forgotten, I trust, that mother's good night kiss, or father's cheery voice calling us up in the morning. Time has silvered our hair and aged our brows; has changed earth's dominion into a land of peace and plenty. The old log cabin and the spinning wheel have given place to the cottage, and thence to the more palatial residence and piano, with other things keeping step with progress, until to-day we can hardly realize we are living in the same age and country. Our needs have become legion and demand a thorough knowledge of science, literature and art; of laws, physics and mathematics; in fact, of everything which aids in our health, progress and happiness. Knowledge is power, and when rightly applied, the keystone of our success in life. There is no excuse for our young men and women not having some knowledge of literature and art, of agriculture and science, etc., when the State of Illinois furnishes a free University, of three hundred and twenty different courses to be pursued.

It is said by Gladstone that "it is natural for him to assimilate knowledge in every day life; that every thing human has interested him," and by becoming thoroughly conversant with the world and its advantages, its laws, rules and usages, has enabled him to become the brilliant, wise and good man that he is—a power in his country, an example to mankind. Such a record is worth more than the most precious gem.

This life is but a span from its birth to the grave, and in it we allow too many golden opportunities to pass idly by. Nature is full of hidden secrets, and no matter how busy we are, if we would take notice, there are few days we could not learn something new. Every one's needs are not confined to their surroundings always, but they should be fitted for any sphere in life that they might be called upon to occupy. Thus they can not be too well qualified. The day of common school education—to read, write and cipher—has gone by, and to day, to be considered tolerant, one must be versed upon all topics. If lack of means does not avail you of a collegiate course, one can, by our public schools, Chatauqua circles, business courses, etc., (which can be studied at home), acquire a liberal education; but most tolerant men in history have not been finished scholars of some high college. Cherish the value of good books: they will become your dearest friends, for their thoughts will become yours, and they are always pure and true. As parents, see that your children have the use of our standard literature and periodicals. Encourage the publishing of better and purer items of news in our daily and weekly papers. Such articles as comprise so much of our papers now are unfit for young children to read: such as murders, thievery, prize fights, unprofitable and demoralizing games and horse races, etc. They are not only debasing to the young, but annoying to those whose principles of right and purity have elevated them above their notice.

The morality of our homes depends much upon what we allow to enter them. To be civil and gracious does not necessarily mean contamination, but we can be that when we do not care to go farther. Our homes should be a retreat, safeguard and protection to our children, not an initiatory step to vice. It is the God-given duty of every parent to protect his own by example and precept. By good literature, plenty of innocent diversion, pleasant and interesting conversation about the topic of the day and articles of information, ignoring slandering reports, bad language, quarreling and ill-temper and feelings among your children, any home may become a paradise. To persons of culture there is nothing lovelier than congenial harmony, and parents can not do too much to bring this about by making their homes pleasant and attractive. Don't beautify your home and then shut it up for fear of a little dirt, dust or work, but rather teach your children how to use it at home and then they will be at ease when away and thrown among such environments. Music is one of the finest accomplishments one can have, and one that, no matter how tired and careworn, always rests and refreshes us. It kindles every tender emotion and soothes the heart-broken, it helps to make the home cheerful, happy and contented. Parents too often preach poverty and deny their children many of these essentials, for a child must be amused and when he can not find it at home will sooner or later seek it elsewhere: then tell, if you can, what the real cost may be. Teach your children care and responsibility that they may surmount difficulties as they meet them in life. Encourage thrift, enterprise and economy, and by persistent effort many children can make their surroundings better when parents can not afford to. In the life of Herbert Spencer, England's great scientist, the world's greatest intellect has been shown what a man can do. His stupendous undertaking of the "Synthetic Philosophy," which has taken thirty-six of the best years of his life, through poverty and poor health, is just finished. Of it he says: "I am surprised at my audacity of undertaking it and still more surprised at its completion." To any home it is worth its weight in gold. What are a few dollars to years spent in want and privations that he might give to the world a proof of scientific researches? Too many of us think too much of the needs of the body, its covering, whether it be fine, etc., to the exclusion of the culture of our intellects.

Another very important thing in a child's life is their choice of an occupation. Their success in life depends upon it more than on anything else. "Disappointment is keener than a two-edged sword and pierces through soul and all." It is the bane of many a man's existence. Then see to it that your children profit by your experience. Parents think too much of their own enjoyment to the exclusion of their children's, and, by being constantly put off, they grow sullen, ill-tempered and despondent and resort to things in our absence detrimental to health, peace and happiness. No parent is worthy of a home and children when he neglects them for his own pleasure. Too many

marry without counting the cost, and when deprived of their freedom burst their fetters by unexemplary conduct. A home can not be a happy one without sacrifices on the part of all concerned. Jealousy and selfishness are two things that must be crucified.

The "free delivery of mail" is a subject that has been agitated for some time, and to the farmer's home it means more than many of us can realize until we have experienced the change. How many farmers are in the habit of going to the "postoffice" for their mail and spending the day there? Their boys, as soon as fifteen years of age, soon learn the lesson and want to go for the mail also. Thus father and son's time is idled away in a country store or town. Day after day, through the winter months this serves as a diversion to the male portion of the family to the isolation of a tired mother or dependent sisters. Perhaps this is a tender point to some, but one that needs our attention. Our boys should spend their time otherwise. The farmer has awakened somewhat to his duty, but his story is not yet completed. If he would thrive and enjoy its benefits he must keep abreast with the times, do his own legislating, import his own products, tend to his own interests generally and learn to be more saving of what he has, that his children, seeing his example, may follow in his footsteps, but not to a loafer's den. There are too many setting this example in our towns, and in consequence of it are filling our penitentiaries, jails and almshouses to overflowing. There is nothing nearer akin to vice than idleness. Time is fleeting and life too short and precious to be flitted away.

Heretofore I have spoken of the education, moral and social training of our children, now, as a whole. I would speak of our environments as a home with other homes. There is nothing that refines, purifies or elevates more than good companionship. The more or less isolation of the farmer and his family demands organization among them—a place for meeting and mingling together—to brighten our intellects and renew our memories. Use makes perfect. Shakespeare's success as a dramatist was gained by his close study of human nature. He owned an interest in a theater. There he nightly studied what produced a good effect and what did not. Mary a belle, noble lord and artless yeoman, while looking on, unconsciously sat for pictures which his sympathetic soul was in meantime sketching from their inmost beings. What better proof do we want to prove the advantages gained by associations not only with persons but things. It is to study them and apply the benefits that makes our efforts a success.

A man who spent his earlier life on the farm, but who two years ago moved to town to educate his children, this spring has again sought a country home. He says: "Talk of your intellects, deep thinkers and people of judgment—go to your farmers for them. They are the ones that do the theorizing, experimenting and practicing, and prove the problems of life. The ones that are best versed on the topics of the day, but not on the last theater, party, fashionable dress or dinner. Allowing this to be true or not, it is no reason, because one fails in benefitting himself that another should follow his example. It is not necessary for us to seek the city for culture and refinement; civilization is doing this work if we will only do our part and help it on by being more sociable in our farming communities, improving our talents and opportunities. Live up to the abilities given us. Make the most of life under all circumstances, and feel that it is all for the best. Many homes are made unhappy and divorces ensue, all from the lack of proper culture and the dignity to maintain it.

Who does not admire a man whose pride is in doing well what is worth doing at all, whose person is neat, precise, and ways manly, whose energy has made him a thrifty and enterprising example to follow. Such a character is worth cultivating and should be the aim of every farmer boy—a mother's pride, a father's joy. Mothers and fathers, watch over your boys and girls and guard them as you would your life; and when not with them let your prayers follow them. Would that our children could see the good of a perfect life. It is a blessing that wealth can not buy, although it rules nations, homes and many lives, a power which makes conditions, peace and purity.

It makes presidents, senators and laws, it decides the courts oftener than the principles of justice, and sits at the right hand of power, order and virtue, yet it can not buy the soul—that priceless gift of God.

In concluding, let us aim to make the best of everything. There is nothing like being satisfied with life and its conditions, and while one's means does not allow them to realize and enjoy all the "golden opportunities" as they pass, yet there is a perfect peace in knowing that the life that God has given you is being watched over and cared for by an All Powerful Hand, mighty to save. That He has given us this life and the power to use it, and if "used" to His glory your reward will await you "within the gates."

Mrs. King: We will now have a paper read by Mrs. Col. Busy, of Urbana, written by Mrs. I. S. Raymond, of Sidney, on "Women as Revenue Makers on the Farm."

WOMEN AS REVENUE MAKERS ON THE FARM.

Mrs. I. S. Raymond, Sidney, Ill.

In the beginning let me say that I shall make no odious comparisons between men and women as revenue makers. Where both form a partnership well balanced as to integrity and faithfulness we have the best results. I believe in the old fashioned sentiment in the words from Hiawatha's wooing, "As unto the bow the cord is. So unto the man is woman. Though she bends him, she obeys him, though she draws him, yet she follows; useless one without the other."

The glory of our State and Nation does not consist in the the number of its millionaires and their benefactions to their poor neighbors, but in the number of households where love reigns, and where the income is produced by the economy and industry of all that are interested in the home.

The duties of the wife and mother are manifold. Often she is cook, laundress, nurse and house-maid in one. How then can she be a revenue maker? It must be incidentally and not as a regular business.

I shall not in this paper give you any statistics as to the quantity of eggs, butter and cheese produced or their value, and I shall not tell you of women who are regular farmers or dairy women or fruit producers. I know there are many cases where women successfully carry on farms and dairies, but these cases have not come under my immediate knowledge or observation. Mine shall be the humbler task of calling your attention to the quiet heroism of women who day by day and year by year, patiently help to pay for farms, build new homes and educate the children.

It is good for us to meet together and think of these things, though they be but common place. Life is made up of the little things. It is quite necessary in these rushing times to teach the youth of our land the value of small economies.

We have a gray-haired neighbor who comes from County Tipperary in the Emerald Isle. When he was a boy and began to earn his "wage and keep" he herded cows. Took them out at five in the morning after the milking; brought them in at ten o'clock; at noon they were milked a second time; at three in the afternoon he again took them to the grass where he stayed with them until the shadows were long and milking time had come again. He herded for the season for the princely sum of two dollars and a half, and in addition to this he was "to have a new shirt if the hens laid well." Blessings on the hen! (though personally I fear, more than I love her). She brings comfort money to our country as well as to old Ireland. Even in our villages, from Maine to California there are households where a few hens are well kept on the scraps from the table, where the fresh eggs are a much needed luxury, and from these same places many dozens, in modest little baskets, help to pay the bill at the grocers.

In many places where drouth and hot winds destroy the crops, if enough can be saved to feed the cows and the chickens, the family will get along somehow.

The selling of a flock of turkeys is a great event in many country families, the spring outfit for "the girls," the new cloak for the mother, John's longed for books, or the music lessons come out of the money thus obtained.

We live on a good sized grain and stock farm. We do not board our men and we do not pretend to raise poultry or make butter for market. Last summer I decided to keep an account of the butter and eggs sold when the quantity on hand was more than was needed for generous use in the family. I found by keeping an account of all fresh meat and fish purchased during the season, that two-thirds of the income from the butter and eggs paid the bill. I have spent the other one-third in "divers and sundry" ways many times.

A friend of mine kept Brown Leghorn chickens, (this is not a chicken advertisement.) A well-to-do neighbor every season presented her with some weeklings from his herd of swine. With the income from her eggs and poultry, the butter she could spare, from the milk of two cows, and the wonderful pigs she used to raise, she kept the family, enabling her husband, who was a renter, to sell his portion of the crops, invest and save the money, until he bought and paid for a 160 acres of land in what is called the good part of Nebraska.

This happened before last season. It would have taken longer to pay for the farm with present prices. I had a neighbor who although she had nine children, and often hired men to cook for, milked cows and fed calves, and made butter enough to buy all of the groceries and many articles of clothing for her family. She did this during all of the years that her children were growing to manhood and womanhood.

The sorrowful part of the story is that in her young days, she had no time for cultivating her mind. Work was her life! Now her children are all well-settled and she is broken down in health and very unhappy in a cosy home in town. She is "the old woman" to her boys, and it is hard for them to understand why she is discontented to live without work in her feebleness. They who read the papers, and are in active life forget that she has no resources within herself.

Another sad instance comes to my mind of a willing little woman who not only worked faithfully indoor, but helped with the family income by doing outdoor work, until her health failed. She had a family of little children and her husband was very poor. A devoted young sister, earning weekly wages, helped her to many comforts and at last furnished the snowy robe in which she was laid to rest.

A woman must not forget that her health is her capital. As I get older I learn that zeal should be tempered with wisdom. If a woman looks well to the ways of her household and has a conscience that abhors waste, if her family are well fed and well mended, she may consider that she has a part in the making of the revenue, and that she has a right to spend some of the income from the farm as she sees fit. Let her take a little time for reading and study, that she may keep in touch with the events of the times, and that she may feel that she has a part and a place in the great world. Then will she also learn to cultivate the "Fruit of the Spirit," "Love, Joy, Peace, Long Suffering, Gentleness, Goodness, Faith, Meekness, Temperance," which make a perfect womanhood.

MRS. I. S. RAYMOND, Sidney, Ill.

Mrs. King: We will now have the pleasure of listening to a recitation, "Don't Sell the Old Farm," by Captain Harlan.

Mrs. King: We will now listen to a paper written by Mrs. H. M. Dunlap, of Savoy, Ill. "Farmers Table."

THE FARMER'S TABLE.

Mrs. H. M. Dunlap, Savoy, Ill.

"The strength of every other member
Is founded on your stomach timber;
The qualms or rapture of your blood
Rise in proportion to your food."



MRS. H. M. DUNLAP.

have healthy human beings. May the day soon arrive when we will spend as much time and study on preparation and use of food as we now do in the study of the correct and best way of growing it. We have in the past, and many of us are to-day, feeding human beings in the most ignorant manner, not according to the nature of our bodies, the work required of them, or the chemical properties of the food. We have been feeding our palates, and to a certain extent that is correct, for as one writer has truly said, "The sense of taste is not the least of the many blessings conferred by a wise creator and how to please the palate without giving offense to the stomach is a problem worth studying." Can we not study to feed the palate and the body at the same time and so build for a better physical, mental and moral manhood? Indeed I believe we can and the day is fast approaching when the foods for man and its preparation will be a part of every boy and girl's education. Let us help to hasten the time.

The statistics of insanity throughout the United States says: "One out of every three or four thousand in the country and one out of every six or seven thousand in the cities." What does it mean? Why is the proportion double from our rural districts? Are we (the rural population) to be considered as a class of people lacking brain power or the ability to maintain its equilibrium? I think not, and yet something must be the cause of it. Is it not my privilege as one of their number to see if I can locate it? As I have studied and endeavored to find the cause or causes I find the principle one can be said to be the food of our average farmer. White bread, potatoes and pork form the basis of many farm tables. Three highly carbonaceous foods of a heat and fat producing nature. The muscles, brain and nerves are left to starve because the foods necessary to supply their waste and growth is not in this food ration in sufficient quantity to feed them. The mind and nerves give way, and we send our friends and neighbors to our hospitals for such diseases and

This little verse is so true that I wish it might be one of our mottos for our dining rooms, and that wives and home makers knew how to place before their families the best timber for the making of brain, muscle, nerve and tissues, so that all parts of their bodies would be fed properly, and that we would not starve in the midst of plenty.

Recently I was at a Farmers' Institute where one of our State University professors gave a talk on the fertility of the soil and how to maintain it. He had a chart showing the chemical elements in the soil and how they must be maintained in order to bring forth healthy plant life. The thought came to me how helpful it would be for us to have charts showing how human beings (plants) derive their subsistence from the products of the soil made from its elements and how these products enter into the human bodies to make or compose their chemical properties, and it is said with the light we now possess on the subject, that these elements must be given to these bodies in the right proportion if we expect to

seem to think their affliction is a dispensation of Providence and that it does not lie in our power to help it. There are other causes that work together as a whole that produces so much insanity among our farmers' wives. The monotony of their life with its ceaseless round of drudgery, the unattractive home and surroundings, but little being done to make their work convenient and attractive, and to me it is often a wonder that more do not fill our hospitals than do. May our Farmers' Institutes continue to grow and thrive that we may obtain an inspiration and knowledge from some source to work one and all to better our farm homes and everything pertaining to them.

Nutritious food, properly prepared, is one of the foundation stones of happy, healthy homes, and I am glad that we have the privilege of discussing this subject to-day, for by the agitation of it I think we all will better realize its importance and our responsibilities towards a proper use of all foods that are given us for the sustenance of our bodies.

Foods are divided, according to one of our scientific writers, into carbonaceous, or heat and force giving foods: nitrogenous or flesh forming, muscle making foods and the inorganic foods water and salt. Another writer also adds the phosphates as one of the principle divisions as that element is necessary to the growth of brain, nerve and bone. Can you not see that it is imperative that man's food ration each day should contain these elements in the proper proportion to insure health?

We must know that the food containing nitrogen—our flesh or muscle forming foods—are beef, mutton, poultry, eggs, milk, cheese, old and ripe peas, beans and lentils. The common carbonaceous, or heat producing foods, are composed of the starches, sugars and fats, such as white bread, sugar, rice, potatoes, sage, pork, macaroni, butter, cream and nuts. The best of the foods containing phosphates are lean meats, fish, cheese, whole wheat, oatmeal, almond nuts, southern corn, beans, peas, figs and prunes.

The whole wheat grain and milk are said to be two foods that contain the elements of the body, in the most correct proportion to feed it, of any of the foods that we possess. Man has tried to deprive us of one of our most perfect foods, the wheat grain, by his system of milling, and to-day we find the American people living on white bread with the nutritive value of the wheat grain mostly bolted out, thus depriving us of the best properties of the grain as a food. Our white flour contains only the starch or carbonaceous part of the grain with just a small, very small, part of the nitrates or center of the grain remaining. The nitrates, phosphates and other elements are taken out.

Bread made from the whole wheat is one of our best foods. It is said man could subsist for an unlimited length of time on whole wheat bread alone, while on white bread he could not live longer than two months. Our white or southern corn, as it is called, has largely of the nitrates and phosphates in its composite and should be more generally used by us as a food. The whole wheat bread and corn bread should be found on our tables instead of the white bread so commonly used. Children will soon show a preference for these in place of white bread. We have become a white bread eating nation and many are attributing the common and universal disease dyspepsia to the unwise and excessive use of this white bread.

As you sit down to your table stop and think before eating of the ration before you. Most of us will find too many of the carbonates there in proportion to the nitrates and phosphates, and so we have not a perfect food ration, for we over feed that part of our system and starve the others. Too much of the carbonates produce fevers, deficient blood, weak, nervous systems, neuralgia, headaches, etc., but if placed in proper proportion help to give us healthy bodies. We, as farmers, must choose a better bill of fare for our tables by taking away the excess of carbonaceous food and substituting more of the nitrates and phosphates. Substituting whole wheat bread for white bread, have potatoes not oftener than twice a day, and once would be better. Sell your pork, if you wish to help kill other people, but don't let it help to destroy your own good health or that of your family by a too frequent use of

it. Put more of the cereals, fruits and vegetables upon your tables and make even a greater use of eggs, poultry and milk; place more simple, wholesome and nutritious food upon your tables.

After we have selected our food, which is the first important feature, the next, and perhaps the greatest, is its preparation. The best of food can be spoiled in preparing the cooking. The very element of food which we wish to retain is often lost by our way of cooking. I will illustrate by the cooking of an egg. Ellen H. Richards, in her "Chemistry of Food," says: "Egg albumin is soluble in cold water but coagulates at about 160 deg. F. At this point it is tender, jelly like and easily digested, while at a higher temperature it becomes tough, hard, and soluble with difficulty. This fact should never be forgotten in the cooking of eggs. Raw eggs are easily digested and are rich in nutrition, when heated just enough to coagulate the albumin or 'the white,' their digestibility is not materially lessened, but when hard boiled the albumin is rendered less soluble. To secure the greatest digestibility in combination with palatability they may be put into boiling water, placed where the temperature can be kept below 180 deg. and left from ten to fifteen minutes or even longer, as the albumin will not harden and the yolk will become mealy. To fry eggs the fat must reach a temperature—300 or over—far above that at which the albumin of egg becomes tough, hard and well nigh insoluble. You see there is a right or scientific way of cooking an egg and what we as women should desire to know and then study is the best and most scientific way of doing all our cooking. We should learn to make our food digestible and palatable.

Many say it is not necessary to study this food question and what good is it going to do you. I can not tell you all it has done for me, but will say it has helped to convert me from an invalid to a comparatively healthy woman and the pleasure that comes to me from knowing how to cook some foods in the most scientific and wholesome way makes me feel that I want to acquire a wider knowledge of the preparation and use of foods. "Know how is a great labor saving invention on which there is no patent," that will help us greatly in all household duties.

I hope that our farmers will more generally feel the necessity of providing a good fruit and vegetable garden and not expect the good wife to look after it and often make, or superintend the making of it, if they have any. An acre or two used in this way would bring you greater returns in health and happiness than many acres of corn or wheat. Try it and report at our Farmers' Institutes.

As I look back and see my old form of diet and then compare it with my present one, which is still far from perfect, I wonder how I lived at all under the old. I, like many housekeepers, thought I was neglecting my duty if plenty of pie and cake was not always to be found in my larder, but what would you think of me now if I should tell that I have not made a pie for my family for three years, and we almost have to be introduced to cake when it comes upon our table. You ask me what is harmful in pie, and I will say there is a good reason, and a scientific one, why I have discarded it from my table. I will again quote from Ellen H. Richards' "Chemistry of Food." "Fats alone are easily digested, but in the ordinary method of frying they not only become decomposed themselves, and therefore injurious, but they also prevent the necessary action of heat or that of the digestive ferments upon the starchy materials with which the fats are mixed." "Pastry owes its harmful character to this interference of fat with the proper solution of the starch. Good pastry requires the intimate mixture of flour with solid fat. The starch granules of the flour must absorb water, swell and burst before they can be dissolved. The fat does not furnish enough water to accomplish this, and it so coats the starch granules as to prevent the sufficient absorption of water from the wetting or from the saliva during mastication. This coating of fat is not removed till late in the process of digestion." "The same effect is produced by the mixture of flour in made gravies." Thus you will see that pie is difficult to digest and when digested does not furnish much food for our bodies.

I might give you some bills of fare and recipes for cooking food, but that would not help you much toward solving this food question, and all I can do in the limited time allotted me is to say a few words towards opening your minds to the importance of studying the food you place upon your tables.

The adulteration of foods is a serious problem facing the American people, and we, as housekeepers, must know how to select our food that it may be the purest and best. Our baking powders, many of them contain alum in such quantities that the use of them is injurious to our stomachs. The use of made or acid vinegars can not be too strongly condemned, and may not so much cancer of the stomach and other stomach troubles be caused, or at least aided and increased, by its use. The best fruit vinegar should be used sparingly, but never buy or use a cheap or inferior kind if you prize a healthy stomach. Our extracts, spices, coffees, salt, sugar and many other things are adulterated, and we should understand where and how to get the best of all our foods, for it means health to our families. Are we not blind to our own best interest when we do not make our table food more of a study and science than we are doing to-day?

There is not a work before us as dwellers on this beautiful earth of greater importance than the study of man's ration. You study to know how to feed your horses, cattle and hogs that they may serve your purposes well; you study the best methods of tilling, preparing and fertilizing the soil to produce food for man, and let us begin a more thorough and scientific study of its preparation and use for man. I assure you if you will do this that good returns will soon be coming in and you will enjoy better health, consequently a greater degree of happiness, for it is hard for man to be either a Christian or a saint on the food of a sinner. X

You may ask me how are we going to improve the conditions in which we find ourselves, and I will enumerate a few things that we can do as they have been presented to my mind.

In the first place, if you think about it, every thing is accomplished by individual effort, and it is the accumulation of these efforts that brings forth decided and progressive growth in any direction.

It lies within the power of every farmer's wife (if she can sell butter, eggs or chickens enough, and can spend it for that purpose,) to take some periodical especially devoted to the home and its interests, out of which she will learn many ways of saving time and labor in performing her many household duties; where she can learn of many of the new and latest appliances used in her work; where words of advice will be given and thoughts breathed forth from the best minds that are devoting their lives to the improvement of our homes, that we can not afford to miss, and so my first suggestion is to take some periodical for that purpose. I will mention a few that I take and find of untold value to me: The "Ladies' Home Journal" and the "Household News" have joined hands recently, and Mrs. Rorer, who was editress of the Domestic Science portion of the latter is now to write exclusively for the Journal. That magazine I feel you can not afford to do without, for Mrs. Rorer is one of our best writers and workers for a better food ration for man. The "American Kitchen Magazine," one devoted to household science, is a good one, published in Boston. The "Boston Cooking Magazine" is also good, the latter being edited only quarterly and at 50 cents a year; the two former are \$1.00 a year. I am not here to advertise any special magazine, and I care not what you take, but only speak of these as being specially helpful to me and I am desirous that you may try and take one at least. After taking them, let me advise you not to lay them on the shelf and forget to read and study them.

Another way is to lend your influence wherever you can, at our institutes, at our State and county fairs, that this matter may be presented to the minds of the people and that it may be agitated. Instead of getting some one to write you a paper on these subjects who is only on the first round of the ladder, I hope the day is not far distant when our institutes will be so arranged and classified during the winter months that we can employ one capable woman

to go the rounds of the institutes who can give us demonstration lectures on the preparation of simple wholesome foods. We can not estimate the value it would be to us.

At our State and county fairs, where much money is spent, and often times little good derived therefrom, could we not do something in the domestic science department? We endeavored to do a little last year at the State fair, but through the lack of knowledge of just how to go to work to accomplish the end desired, and not having means financially at our command, comparatively little was attained. The "Chicago Record" kindly gave \$100 toward the work, and it was only by their kindness that we were able to do what we did. The Agricultural Board felt that they could not help much in the matter, but gave space and electricity.

To my mind one thing was clearly demonstrated, and that is that the men are ready to do their part towards making better homes when the women are ready and know what they want and can present a just claim before them. We should have at our State fair a woman's department, just as much as a horticultural, agricultural or machinery department, where every thing used in a home, all the appliances of the kitchen, dining room, and, in fact, all the rooms of the house, can be developed in a practical way; where demonstration lectures can be given, and we can learn the most simple, nutritious and best ways to prepare food for our table; where, in fact, may be given us, as women, an opportunity to advance along the line of our work toward better and happier homes.

Another place where we can help to develop this food question, is to cast our thoughts and influence towards educating our girls in a more practical and useful way than is being done to-day. The best part of girlhood is spent in the school room, and mothers complain that they have no time for learning house-work or anything pertaining to the home. Pause and consider. What is the life-work of the majority of our women? Is it not that of the homemaker? Educate her then for it and you will not have so many unhappy, in-harmonious homes. A gifted clergyman of New York city, in a sermon on "Young Men and Marriage," said: "Good house-keeping has far more to do with domestic happiness than young lovers dream of; that no matter what a girl's accomplishments may be, her education is incomplete if she has not some knowledge of bakeology, boilogy, roastology, stitichology and mendology. I would like to add washology also, for there are many secrets to be learned in that in order to bring forth satisfactory results."

This winter we hope that an appropriation will be granted by the Illinois Legislature to do something in this line for our girls at the University of Illinois. Lend your influence in every way possible that at that university, which should be at the head of all educational institutions, shall have that department and well equipped so that the good work will advance toward giving your girls a practical education along with the accomplishments.

May they see the necessity of doing that which will elevate the home life and make for a better knowledge of the use and preparation of foods and they will find that it will lessen crime and insanity and the number of inmates in our reformatories, penitentiaries and insane hospitals will decrease in proportion to the amount of education in this direction we can disseminate in the homes of our State.) Let us double our effort towards making a purer, better manhood and womanhood, and the only way we can do it is to cultivate and instruct our boys and girls, but especially our girls, in the practical part of life's duties which makes happy, healthy and prosperous homes.

Our public schools should have manual training and domestic science as the first things taught and then as many other advantages given as they can afford, but insist that the practical must be the foundation stone of every boy's and girl's education. This fall I visited the schools of Minneapolis, Minn., where manual training, sewing and domestic science is a part of the schools curriculum, and I was fascinated and impressed beyond words to express of its importance in the school training of every boy and girl. I asked the teacher in domestic science how it was received by parent and pupil and she said that they were ready to concede that it was the most popular study in the

school. They as yet have not been able to put it in all of the buildings, only six throughout the city, but will as soon as able to do so. She said: "It was so popular that many of the boys were begging for the privilege and that three of them had pleaded so earnestly that they had at last consented and they were taking the course this winter and were doing finely."

You may consider this a digression from the subject, but in fact it is not, for, as Mrs. Helen Campbell, one of the true and helpful women of our cause, recently said in a meeting where these things were being discussed, that the words she wished to give them that summed it all up was—"Clear the way." Another remarked: "Clear the way, but don't expect to do the last thing first." I feel it so applicable to this subject. We must "clear the way" for a more perfect food ration for our tables, first starting at the foundation, and that is to educate boys and girls and the women of the land toward this food question and not away from it.

Let us as tillers of the soil and guardians of the home help to "clear the way" by doing all within our power to overcome the obstacles that lie in the way of placing food upon our tables that will feed mind and body and thus help to increase happiness and health in our homes.

After the paper was read a voice asked: "Are the ladies who have read the papers here this afternoon what you call the new woman? If so, I hope there's lots more of them."

S. M. Black, Clayton, President Adams County Farmers' Institute: It seems to me right here we ought to stick a pin—we want to begin to give our women something pure to cook. We want a pure food law. After listening to the able paper of Mrs. Dunlap it seems to me we ought to go to work, one and all of us, and have a pure food law on the statute book of Illinois. (Applause.) I don't intend to take but a moment of time, but that is one of the most important things we could have. Go to your grocer and you get something you don't know what it is. You ask for honey—you get glucose and sugar and some honey comb. You buy groceries—sugar—it's mixed; coffee—it's mixed. You buy pepper and it's mixed—and it's all sold for pure goods. I don't want to take up time, but I want this discussion to ensure action that will effect something. There are better talkers—better workers than myself, but I want to see this thing straight here.

Mrs. King: We will have a little time for the discussion of these papers before the end of the meeting, and if there are any questions any one likes to ask Mrs. Dunlap will be glad to answer them.

Mrs. Dunlap: Any questions that I can answer in my feeble way, I shall be glad to do so.

Willis A. Clark: In furtherance of the idea just advanced by the gentleman on the front seat, I would say that Bill 182, introduced by Representative Brown, is an act to provide against the adulteration of food and drugs and the manufacture and sale of food and drugs. That bill has already been presented to the House and is committed to the committee on manufactures.

Voice: May I ask if that bill is in good hands? A great many of these bills are made up by parties that don't know just what is wanted and the law don't accomplish what is intended.

Mrs. King: Perhaps it would be a good plan for you gentlemen to hunt up that committee and see that the bill is put through. It certainly interests us all—every housekeeper knows what it is to buy pure groceries.

H. J. Westlake, Litchfield: I think the lady's suggestion with regard to somebody to look after that bill and see that it is pushed through is a suggestion we ought to follow up. It don't make any difference what bills are wanted by this corporation or that company or something else, there's always a lobby behind the bill. I think there ought to be a lobby behind this matter and push this pure food bill through.

Mrs. King: We will close the meeting with the paper by Miss Helen Reihl, of Alton, whom we had hoped and expected to have with us to-day, and in her necessary absence here, her father has kindly consented to read it for us, on the "Surroundings of the Farm Home."

SURROUNDINGS OF THE FARM HOME.

"Beauty sanctifies the sorrows of the world."



MISS HELEN REIHL.

What a dreary aspect do many rural homes and their immediate surroundings, present to the observing traveler in this country!

In many instances the fields and fences are too near the house, which stands only a few paces back from the public road, and in disagreeable proximity to the barn and other outbuildings; the fowls having undisputed possession of the grounds adjoining the dwelling house.

There is no picture so truly American as that in which rail fences, and cornfields in the shock, with the yellow-red pumpkin lying in the furrow, forms a prominent feature; and if, in an European art gallery we should come upon such a landscape, 'twould make our hearts swell with love and pride of our native land; yet we tire of seeing nothing from our windows throughout the year but grain fields and unpainted fences, and there is no excuse for thus neglecting the adornment of our home surroundings.

Of course it is taken for granted that any one selecting the spot whereon his house is to stand, will so place the building that it will command the most attractive and best possible view; but, taking a house as it is—and the most unprepossessing homestead barren of ornament of whatever description—and it may, with a little landscape gardening, and without necessarily entailing any great expense on the owner, be converted from an eyesore to the passer-by into a small Eden. In fact, this is what every country home should be.

An acre or more, as it can be spared, should be reserved for this purpose, and dedicated to beauty.

A level plat of ground should be left free, and a lawn cultivated there; the grass, after it is once well started, being kept neat and short with a lawn mower and sprinkled with a garden hose, which, fitted on to a pump in a cistern or well, will be a delight for the grass and flower beds in the time of the great summer heat.

Every farm house should have a veranda on at least one side of the house, and on the posts of this, vines, such as wistaria, trumpet flower, bitter sweet, maderia vine, or some of the many varieties of clematis, may be trained, and a hammock swung across the corner. Several stationary garden seats and portable benches are a desirable feature for the comfort of tired people on fine summer evenings.

There should be an arbor or two on the grounds, covered with grapes or climbing roses. Pink and white oleanders in tubs give a fine effect when placed near the entrance to the house or in groups on the lawn, and bright red geraniums, all of one color, are a very showy ornament massed in a bed all to themselves, or in a row around one corner of the house, planted close to the wall. Hollyhock or sunflowers are serviceable to hide a homely fence.

Virginia creeper will soon cover an old stone wall or the remains of a dying tree, and convert into a thing of beauty with its brilliant foliage in the autumn.

Trellises should be used and shrubs planted with reference to their position as screens, to bar the view from unsightly necessities. A row of evergreens

is an excellent screen to place between the dwelling and the barn and workshop. This latter is an absolutely indispensable building on a farm, and besides being a place to keep all the small tools used on the place, including a carpenter's complete outfit, it is a wonderfully good place for the boys in bad weather, where they can busy themselves with making the many things so dear to a country boy's heart.

It is a great satisfaction and comfort to have the walks around the house and those leading to the other buildings on the place paved with large flat stones, to keep the feet clean in muddy weather.

The driveway and walks should not lead in a straight line directly up to the front door, especially if there is not much space in which to do it. A little winding path among the flower beds and bushes seems much longer than a straight one of the same length; and these pleasant little delusions give a sense of privacy and seclusion which is very gratifying. Trees, according to their kind, should be planted singly, or in groups or rows with reference to their suitableness to the place—a few slender poplars to stand sentinel at the gateway, give an aristocratic air to the premises, the stately elm and maple make beautiful shade trees and grow rapidly, and flowering shrubs may be planted which will keep up a succession of bloom from May until September; nor should we forget the different conifers, to relieve and brighten the sober monotony of the winter landscape with their cheerful green.

A good boat is a source of much enjoyment to those who are so fortunate as to have a river or lake; as is also a croquet set on the lawn, and a swing under a large shady tree, for the little folks.

A country house such as this will be loved by the little children who grow up in it and beside the pleasure it gives, its moral influence is incalculable.

The rural home, on account of its greater permanence, means more than that in the city—as every object has time to impress itself indelibly on the child's mind; and there is larger scope for individuality.

Every home should be a thing unto itself—and the less it is like any other the greater will be its power. Many farmers become so engrossed in making a living that they do not seem to realize that there is something higher or better for them than mere existence, or seem to know that they are starving the souls of their beauty craving children; of such are the restless young people who "hate the farm" and wish to leave it at the earliest opportunity.

Beauty has a power over us which is greater than we know; it bouys up the tired spirit and elevates our thoughts from the sordid and common place cares of life, and supplies our element which is as essential to our happiness and wellbeing, as are food and raiment. O! that we could all feel toward the home of our childhood, as did one, who inspired by the memories of his youth, sang

"Ah well if, when my work is done
Others its worth shall see,
And say that I have wrought as well
As thou, old home, for me.
No touch of Nature could endear,
Nor artist's hand adorn
The sacred halo that surrounds
The house where I was born."

Mrs. King: The time has come now for the adjournment of the meeting and I am requested to announce that the institute will meet in this room this evening at half-past seven.

Meeting is now adjourned.

STATE HOUSE.
 SPRINGFIELD, WEDNESDAY, Feb. 24, 1897,
 7:30 o'clock p. m.

The Institute met pursuant to adjournment with Hon. W. E. Robinson, of Greenville, in the chair.

Chairman: In the absence of Mr. Pierce, the President of the State Board of Agriculture, his address on the work of the State Board of Agriculture will be passed. The Secretary has a communication from President T. E. Goodrich on the work of the State Horticultural Society, which will now be read:

THE WORK OF THE ILLINOIS STATE HORTICULTURAL SOCIETY.

By President T. E. Goodrich, Cobden, Ill.



T. E. GOODRICH.

the scourge stamped out as speedily as possible; that it could be dealt with then far more easily and cheaply than after a few months delay.

Quoting from the United States Department of Agricultural Bulletin which reads: "We are justified in the assertion that no more serious menace to the deciduous fruit interest has ever been known." The State Entomologist states that one orchardist has lost 1,000 trees, killed by scale, after a considerable effort to dislodge it, and whose remaining orchard of 700 trees is thoroughly infested.

He reports ten widely separated places in Illinois where scale has securely fastened itself and from where it is certain to spread in all directions if not checked or exterminated where it is; and that "the situation calls for wisdom in council and energy in action."

He estimates the increase of one female in one season to be the enormous amount of one billion and a half of female scale.

All kinds of fruit trees and plants are subject to its attack, with the exception of strawberries and blackberries.

The State Horticultural Society has recently held its 41st annual convention.

Its program was participated in by members from all parts of the State. Its discussions enriched by delegates from five states. A large and instructive fruit display was made.

The members dispersed to their homes affirming that the meeting had been one of the best and most instructive in the history of the society.

During the summer State Entomologist Forbes reported to the executive board of the society that the destructive San José scale had been found in an orchard near Quincy; that it had been imported into the State on trees from New Jersey; had already killed a number of the trees and was increasing in such numbers as to soon accomplish the destruction of the entire orchard. Taking this as a starting point, and judging by the experience of other states, the pest, if unmolested, would increase to such an extent as to impair if not entirely destroy the larger portion of the trees in the State.

Professor Forbes reported that prompt action should be taken, and

He stated that his office not having funds that could be used for that especial purpose, was powerless to take the action necessary, and appealed to the Horticultural Society for assistance.

The society deeming it a matter of vital importance to every tree planter in the State, gave the assistance required. We now hope that if the scale is not entirely destroyed at that point it is at least checked and under control. Later he reported that the scale was found in twelve places in the State and reported in four more.

One planter has lost 1,000 trees in a single orchard. In several instances trees had been killed in amounts varying from a score to several hundred.

In all the cases, as far as reported, the trees had been procured from nurseries outside the State, six lots coming from New Jersey. As far as reported no nurseries in Illinois are infested with scale. Thus many thousands of Illinois trees are threatened with injury if not complete destruction.

The State Horticultural Society will do what it can towards the annihilation of this enemy and calls upon fruit growers and nurserymen throughout the State to help the State Entomologist in every way possible.

Let every fruit grower, every one owning trees or plants, make as thorough an examination as possible, on his own and his neighbors' premises, and if scale is found report to Prof. Forbes, Urbana, Ill., and begin spraying if lightly infested, digging out and burning if found in large numbers, to the end that as effective warfare may be waged as within our power, that the scale may be destroyed if possible.

It is easier held in check now, while its numbers are comparatively small, than after a few years of its almost incredible increase, it has fastened itself upon our trees and plants with a grip too tight to be shaken off.

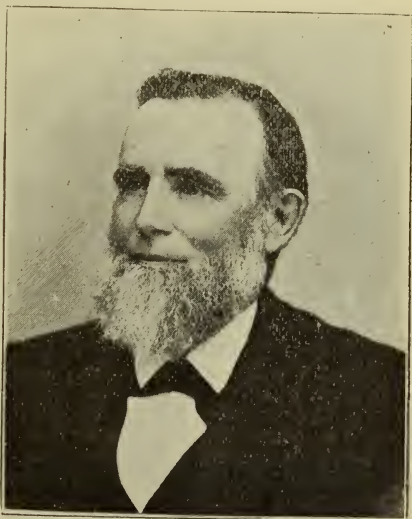
Chairman: In the absence of representatives of the State Dairymen's Association and the State Poultry Association we will pass to the next topic on the programme, an address on the work of the Illinois Beekeepers' Association, by Hon. C. C. Miller, the president of said organization.

Dr. Miller spoke as follows:

The only excuse for the existence of the Illinois Beekeepers' Association is that it may further the interests of beekeeping in the State. So the importance of the association may be to some extent measured by the importance of beekeeping. It is a mistake to suppose that the chief benefit derived from the bee is its honey. That's merely a side-show or a by-product, an allowance to the bee as a reward for its principal labor in fertilizing the flowers of fruit trees and other plants.

Whatever may be the state of affairs in other states, the horticulturists of Illinois are in general too intelligent to underrate the importance of the bee in aiding to secure perfect fertilization, and the day has gone by when there is animosity between fruit-growers and beekeepers. It is now distinctly recognized that they are friends, each helping the other.

In the United States, for every man, woman and child an average of about 60 pounds of sugar is consumed per annum. It is said by physicians that the increase of that dread scourge, Bright's disease of the kidneys, is due to the immense amount of sugar eaten.



C. C. MILLER.

Sugar, before assimilation, must be changed into the condition of honey, and when the proper change fails to be made an extra burden is thrown upon the kidneys, too often with disastrous results. The intense craving for sweets shows a real need in that direction, and it might add greatly to the health of the rising generation if, instead of so much cane sugar, they could have that purest and best of all sweets distilled from the nectar of the flowers and stored in waxen cells by the busy bee.

But too often when a grocer places before you something that he calls honey, part or all of it is simply glucose. Comb honey has not, as yet, been adulterated, and probably never will be. But honey in tumblers and other receptacles, in the liquid form, may need examination. One of the things sought for by the Illinois State Beekeepers' Association, and the thing that has engaged their principal attention during their session to-day, is to secure the public in some way against imposition when desiring to buy honey. A special law might possibly be secured against adulteration of honey, but that is hardly the wisest thing. What is needed is a pure food law, covering adulteration of all food products. It certainly ought not to be hard to secure the passage of such a law. It is a pleasure to be here in this assembly of representative men, to whom I earnestly appeal for every possible aid in securing a well-framed law with proper penalties attached, and I need not waste time in going into details as to what is needed. You who are legislators can be trusted to put words in proper shape so the tricky adulterer can not easily evade the law. You who represent the different departments of agriculture will, I am sure, give your support to such a measure. Beekeepers hopefully ask your aid in what is for your and their interest. Remove the embargo put upon the sale of honey by those worst of thieves, the adulterers, and let all, from the grandsire to the prattling infant, have a chance to enjoy as part of their daily repast that most delicious and most wholesome of all sweets, tons of which are now going to waste yearly for want of gatherers.

Chairman: The next address on our programme is that of Hon. W. J. Johnson, of Morrison, on "Township Farmers' Institutes."

Mr. Johnson then read the following paper:

TOWNSHIP FARMERS' INSTITUTES.

The writer of this paper, like the balance of humankind, never fails to get out from under anything having the semblance of responsibility, and is always willing that the burden should fall upon other shoulders than his own. With this exceeding frank statement of his willingness to dodge, he wishes to couple another, namely, that he did not come here of his own volition, but at the request of one of the officers of the State Farmers' Institute. Should you therefore, get little help from this article, and such a conclusion would be in no sense startling, please lay the blame upon the head upon the one inviting him here and not upon the writer. The one who now appears before you is simply doing as he was bid.

Before I can intelligently tell you what has been done relative to Township Farmers' Institutes in my own county, Whiteside, and I presume that is what you wish, rather than mere theory, it will be best for me to tell you something of our general county work, for the two are intimately blended.

About the 17th of September, 1895, the writer received a communication from the Hon. Chas. F. Mills, Secretary of the State Farmers' Institute. This letter gave, in substance, the present statute relating to County Farmers' Institutes and also contained the request that in counties not already organized, all interested should meet at the office of the county superintendent of schools on September 21, at 2 p. m. In response to this call eight persons came together and, despite the limited number, an organization was effected. About the first thing these organizers did was to plan two meetings, a one day meeting for December 12, and a two days meeting for January 30 and 31. Although it took considerable time and a good deal of work, more than one unfamiliar with such an undertaking might imagine, the two meetings were successfully carried through and had a wonderfully quickening influence on all that related to the agricultural interests of our county.

The two meetings already referred to were both held at the county seat, Morrison, and while well attended, a considerable portion of the county lying remote from the county seat, was as yet unaware of the existence of any such thing as a County Farmers' Institute. Or, if they had heard of it, it had been in so general a way as to leave little impression as to its real character. It was this condition of things that led the executive committee to devise some way whereby the different townships might be reached, in short, if possible, bring the work nearer to the homes of the actual farmers. After fully and carefully considering the matter, the executive committee printed and sent out over the county the following suggestive circular:

TOWNSHIP FARMERS' INSTITUTE.

We, the undersigned, members of the Executive Committee of the Whiteside County Farmers' Institute, being desirous of doing everything in our power to promote the agricultural interests of the county, and fully believing that a gathering of farmers in each township in the near future, for the purpose of discussing subjects of interest to themselves, would be highly beneficial, therefore we do earnestly recommend as follows:

That each town in the county hold a Township Farmers' Institute on Wednesday, February 19th, said meeting to begin at 10 a. m., and to be held in the town hall. If your town does not possess a town hall, the meeting can be held in some church or in any other building available.

SUGGESTED PROGRAMME.

1. Do farmers meet often enough to consider matters of special interest to themselves?

2. How can the public highways of our town be improved? (b) Particular places needing attention. (c) What shall be done for them?

NOON.

3. Some of the apparent causes of Hog Cholera. (b) Remedies. (c) Preventive measures.

4. The Fruit Interests of Whiteside County. Apples. (b) Berries. (c) Grapes.

5. How can the boys and girls be more generally induced to remain on the farm? (b) Would attention to making the farm home brighter contribute to this end? (c) Would more attractive district school houses also have its influence in this direction? (d) Other factors.

Should any other subject or subjects be preferred to the above, the change can easily be made.

We would also suggest that the supervisor and town clerk of each town call the meeting, arrange programme and assign topics, and in short arrange all details necessary to the success of the meeting. We believe it would also be a good plan to have these two officers perform respectively the duties of chairman and secretary for the institute, the latter to make a brief report of the township meeting to the secretary of the County Institute, the same to be laid before the County Executive Committee at their first meeting.

We believe permanent township organization, after some approved form, will receive the consideration of the County Institute in the near future.

R. R. MURPHY, Garden Plain,
H. L. EWING, Lyndon,
WM. BEDELL, Ustick,
A. S. DURWARD, Ustick,
L. M. DODD, Mt. Pleasant,

Executive Committee.

Before I state to you the result of sending out this circular, I want to caution you against expecting too much. Remember that our county organization had only been in existence a scant six months, and also that it started with just eight members. Meager as the results might at first thought seem to you, the officers of the County Institute, of which the writer was, and is yet a member, were much pleased with the outcome. To them it was not so much what was accomplished as the spirit with which the circular was received. Our county contains, counting whole and fractional, twenty-two towns. In a number of these there was no attempt made at all to hold township institutes; in some of the balance the meeting was undertaken, but from one cause and another failed, and in only three townships were stirring, earnest and successful meetings held. But these meetings were good ones, and in two of the three a second Township Institute was held. One of the three townships holding these gatherings is the one in which the county seat is located, and the Township Institute held by that one I attended personally and know that it was an enthusiastic and profitable meeting. The report of one of the meetings made to me by the secretary, who is the town clerk of that town, ends with these words: "Each topic was followed by a lively discussion. The farmers of this town will hold another meeting some time in March." And I may add personally to the secretary's statement that they did hold the promised meeting in March, and a successful one too. The work to which I have called attention finished up all done along institute lines in our county until October 12th of the past fall. At that time at the county seat was held a half day's session of the County Institute. The main feature of this meeting was the consideration and adoption of a constitution. As this is not lengthy, I will present it to you, my only reason for the same being the bearing it has upon and relation to our township work. In the preparation of this constitution we aimed to get hold of everything of a similar nature to which we could get access, and tried to prepare something of which we would not need to be ashamed. It is as follows:

CONSTITUTION OF THE WHITESIDE COUNTY FARMERS' INSTITUTE.

ARTICLE I.

SECTION 1. This organization shall be known as the Whiteside County Farmers' Institute.

SEC. 2. The object of this association shall be the dissemination of correct and advanced information regarding the various departments of agriculture, and the promotion of social intercourse among its members.

SEC. 3. The officers and members of this Institute shall, in every way possible, assist and encourage the formation of Township Farmers' Institutes, but, financially, the two shall be entirely distinct organizations.

ARTICLE II.

SECTION 1. Any resident of Whiteside county who desires to become a member of this Institute shall hand his name, accompanied by a membership fee of fifty cents, to the treasurer, or to some member of the executive committee.

SEC. 2. This Institute may, by a majority vote, refuse to accept candidates unworthy of membership in this organization. In all such cases the membership fee advanced shall be returned.

SEC. 3. Only duly enrolled members of this Institute shall have the right to hold office or to vote, but all general discussions shall be open to every one present, limited, when necessary, simply by any reasonable restrictions the presiding officer may deem wise to impose.

SEC. 4. All supervisors of Whiteside county shall be considered honorary members of this Institute.

ARTICLE III.

SECTION 1. The officers of this organization shall consist of a president, vice-president, secretary, treasurer, and an executive committee of five, of which the president and secretary shall be members.

SEC. 2. The president, vice-president, secretary and treasurer shall, unless the institute decide to elect in some other manner, be elected by ballot, and shall hold their offices for a period of one year, or until their successors are chosen.

SEC. 3. Three members of the executive committee shall be appointed by the president.

SEC. 4. The election of officers and the appointment of members of the executive committee shall take place at the annual meeting in December.

SEC. 5. The officers of this Institute shall perform the duties usually devolving upon such officers, and the president shall, in addition thereto, when occasion requires it, represent this association at any meeting of the presidents of the Farmers' Institutes of the counties comprising the Tenth Illinois Congressional District.

SEC. 6. The special duties of the executive committee shall be as follows: To determine upon the number of meetings for each year, places and times of holding the same, to prepare the necessary programs for said meetings, and to look carefully after all details bearing upon the success of such gatherings. The executive committee shall also, at some time during the three weeks immediately preceding the annual meeting in December, carefully examine the treasurer's books and vouchers, and report fully at the December meeting the result of such investigation. The executive committee shall look after every business detail, in the management of the Institute, not otherwise specially provided for.

ARTICLE IV.

SECTION 1. This Institute shall hold, in December of each year, the exact date to be determined by the executive committee, a two days' meeting, and such other gatherings during the year as the executive committee may consider the interests of the association demand.

SEC. 2. The consideration of the following business matters shall always be a part of the regular program of the December meeting: A full report of the Institute's treasurer, a report of the executive committee as an auditing committee, and upon any other matters they may wish to bring before the Institute, and the election and appointment of officers.

SEC. 3. So far as practicable, and when it does not conflict with the best interests of the association, the regular meetings of this Institute shall be held in different parts of the county.

SEC. 4. The books of this association shall, at all regular meetings, be open to candidates for membership.

SEC. 5. In all questions of parliamentary usage, not decided by the constitution or by-laws, Roberts' Rules of Order shall be the guide of the Institute.

ARTICLE V.

SECTION 1. At any regular meeting of this Institute, by a two-thirds vote, this constitution may be altered or amended, or by-laws, not in conflict with it, may be adopted.

SEC. 2. All amendments to the constitution or by-laws proposed, must be submitted to the Institute in writing.

NOTE.—The Whiteside County Farmers' Institute was organized at Morrison, Ill., September 21, 1895. This constitution was adopted October 12, 1896.

This meeting of October 12th we followed December 2d and 3d with a strong two days' meeting of our County Institute, holding the same in the east end of the county at Sterling. Since then we have held a rousing, earnest half day's session of our County Institute in the west end of the county at Fulton. And in connection with the Fulton meeting, a county one, there comes up a little side matter that it may not be unprofitable for me to dwell upon for a moment. At first there seemed little or no local interest in the proposed farmers' meeting, and some comment was made in different parts of the county upon the lack of local pride. While I am not sure about the matter, I have pretty good reasons to think that some of these hints or comments reached the ears of the business men of the place just mentioned. At any rate they at once took hold of the project and the result was that we had a large audience and one of the most enthusiastic gatherings since organization. As will be noted, this made three county meetings for us the present year—a one day's session at Morrison, a two days' session at Sterling, and a half day's session at Fulton. But let me return to my subject direct.

Up our way last fall everybody was so busy, so to speak, in trying, each from his own standpoint, to save the country, that there seemed little time for such things as township farmers' institutes. Then again, in the early part of the winter, after the country at large was safe, came the additional job of keeping the State of Illinois out of the clutches of Cook county, and again the township farmers' institute was pushed aside. Besides all this, some of our most enthusiastic workers have indulged the hope that, because of the work done last winter, the movement toward holding township institutes would start off this winter of its own volition. But such has not been the case, and nothing remained but for the executive committee to put their shoulders to the wheel and do what they could to set it in motion. After carefully considering everything bearing upon the matter, they printed and sent out over the county the following circular letter:

TOWNSHIP FARMERS' INSTITUTE.

To the Farmers of Whiteside county, Illinois:

After considering the matter carefully, the Executive Committee of your County Farmers' Institute has concluded that the few words to you this year again touching the matter of Township Farmers' Institutes may have the effect of increasing the interest in these valuable meetings. To towns which have not held a Township Institute this winter, or already planned the same, we have the following to recommend:

That you hold a Township Farmers' Institute on Wednesday, March 10, 1897.

SUGGESTED PROGRAM.

FORENOON.

1. Opening Exercises.
2. "How to secure good hired help on the farm."
 - (a) To do general farm work.
 - (b) To assist the farmer's wife in her work.
 - (c) The proper treatment of those performing such service.
 - (d) What is just compensation for each class of work mentioned.
3. "What proportion of his land this spring would it be wise for the farmer to put in corn? Oats? Potatoes? Other produce?"
 - (b) Preparation and testing of seed for same.

NOON.

4. "Some good books for the farmers to read."
 - (b) Magazines and papers.
 - (c) Books, magazines and papers of a general character for the farmer's family.

5. "Are we, from a hygienic standpoint, particular enough about thoroughly cleansing our cellars early in the spring?"
6. "How can we most profitably dispose of our milk the coming summer?"
7. "The proper care of young colts, calves and pigs."
8. "In how many schools yards of our township are more shade trees needed?"
9. Closing remarks by the chairman.
10. "America," sung by the audience.

Of course the above program is only suggestive and you are at perfect liberty to use much, little, or none of it as you see fit. Here are some additional topics from which to select: "Does the hog keep the farmer, or the farmer keep the hog?" "Leaks and losses on the farm." "Farm Fences." "The corn fodder problem." "The most profitable grass crop." "Bad places in the roads of our township." "Beef Cattle." "What shall we do with sandy land?" "Our poultry interests." "Is corn at twenty cents per bushel profitable?" "Do farmers pay the attention to organization that they ought?" "Do they give school matters sufficient attention?" "How can we interest the boys and girls in our Farmers Institutes?"

We would also further suggest, as we did last year, that in towns where there is no farmers' township organization that the supervisor and town clerk call the meeting, prepare the program, and look after all the needed details to make the meeting a success. We also believe it would be a good plan if these two officers would perform respectively the duties of chairman and secretary of the meeting. The secretary should make a prompt report of the meeting to the county secretary. This is quite important.

Where help is desired at these township institutes, and timely notice of such wish sent personally to the ones wanted, the officers of the County Institute will, so far as their own business interests will permit, cheerfully assist in any way they can. The following are the officers of the County Institute with postoffice addresses: President, Charles W. Mitchell, Round Grove; Vice President, C. A. Wetherbee, Sterling; Secretary, W. J. Johnston, Morrison; Assistant Secretary, A. N. Abbott, Union Grove; Treasurer, H. L. Ewing, Morrison; Members of Executive Committee by appointment, R. R. Murphy, Gardenplain; A. D. Stanley, Coleta, and George Talcott, Spring Hill.

Now, fellow farmers, we earnestly hope that our suggestions may bear fruit and that a goodly number of enthusiastic township institutes may be held between now and April 1. Should the supervisor and town clerk neglect to call such a meeting, let any two or three wide-awake farmers make the call and see that it is done promptly. With prices for nearly all farm produce low, and a serious percentage of business failures in the past six months complicating matters, it is certainly time the farmers should meet and consider carefully and wisely the many problems now confronting them.

EXECUTIVE COMMITTEE.

Whiteside county, Illinois, February 5, 1897.

Exactly what will be the effect of this circular letter, it is too early for me to make anything like a fair estimate, but yet I am satisfied it will accomplish a good deal of good. Let me mention one of the bits of evidence leading me to this conclusion. The other morning a prominent farmer, a resident of one of the townships of our county which so far has taken no action along the line I am discussing, walked into my office. After an informal chat he asked me if, providing they succeeded in getting up a township institute, he would come down and help them? I told him cheerfully I would and suggested that he also try to get the president of our County Institute to go too. To this he assented and I at once called up, by phone, the president, Chas. W. Mitchell. You will readily understand this when I explain that Mr. Mitchell has a telephone line extending right to his farm. Mr. Mitchell was at home and in a few moments the date was fixed, March 17th, Mr. Mitchell's promise to help secured, and a good beginning made toward the preparation of a program. The township in which the county seat is located has also started in to pre-

pare a program and in a number of other directions I have heard of very decided and healthful activity. But, our Executive Committee made one mistake in the circular letter matter and a rather serious one too. They sent it out too late. This, however, is an error that need not be repeated. Another year it can and ought to be sent out early in the winter. I am not sure but November would be the best month for the circulation of such a circular letter.

But, now let me give to you, in as brief form as possible, a sort of a summary of what I would recommend to any county wishing to create a healthy interest in township farmers' institutes:

Suggestion 1. If you want a good interest in township institutes, it is almost a necessity that you have at the head of your County Institute a thoroughly clean and capable president. He must be a man who is willing, when asked, as he will be, to give some little time to assisting at township institutes in different parts of the county.

Suggestion 2. See to it, at the proper time, that the Executive Committee of your County Institute is also composed of the right kind of material. If the members of this committee are earnest and broad in character, they can, in many ways, stimulate and assist the township work.

Suggestion 3. The county executive committee should issue each year, not later than the month of December, an annual circular letter somewhat similar to those which I have read to you. Of course these will, and ought to, vary from time to time. They should be progressive in character, in close touch with the times and contain suggestions of real value.

Suggestion 4. In counties organized like most of those in Illinois I know of no better parties, speaking generally, upon whom we can call to assume the responsibility of working up a township institute than the town supervisor and town clerk. Of course this will not apply to townships which have a regular organization of their own.

Suggestion 5. Try to interest the teachers and pupils of the rural districts in this township work. In many ways they can be of valuable aid to you.

Suggestion 6. If your county superintendent of schools shows anything like the keen interest in, and appreciation of, rural interests which he ought, for there lies his main work, try to secure his help. As he goes about the county from district to district, even though he be not a practical farmer he has it in his power to do your cause a good deal of good.

Suggestion 7. A splendid time to hold a township institute in each township of any county would be about two weeks before holding the annual two days' meeting. At each of these township gatherings delegates to the county meeting could be selected and in this way the larger gathering be made to receive new life from this interested delegate attendance.

Finally, farmers of Illinois, do not become too easily discouraged. Remember that in this field, as in all others, on a few heads must fall the burden and heat of the day. This has been the history of the past, and so will read the history of the future. But if each delegate in this audience, who has not done so before, will go back fully resolved to do something in his county for the township institute, the influence of this resolve will be plainly traceable in the larger and more enthusiastic county meetings of one year hence.

As the magnet gives power to the simple armature attached to it and is in turn strengthened by this little bit of metal, so shall the larger farmers' gathering both give to and receive from the lesser one.

Chairman: The next topic is an address on "Township High Schools," by Hon. S. M. Inglis, State Superintendent of Public Instruction.

Mr. Inglis then read the following paper:

Chairman: Mrs. Senator John M. Palmer is on our programme for an address on "Domestic Science at the State Fair." Mrs. Palmer is in Washington and Mrs. S. M. Inglis has kindly consented to read her paper.

The paper of Mrs. Palmer was then read as follows:

Members of the Farmers' Institute:

The topic assigned to my unaccustomed pen is "Domestic Science" and is of practical value to the housekeepers and home-makers of all this broad land. In vain have I urged that to an abler writer and more experienced housewife should be given this opportunity. Alas! I had already committed myself to an expression of deep interest in this wide field and am told that is one of the necessary qualifications.

To improve the home, in every way possible, is one of the many and varied duties of woman, and we recall and agree with the one who has written:

"Man's work lasts from sun to sun—
Woman's work is never done."

Shall we not then avail ourselves of the methods and inventions which science is daily bringing to the aid of the modern housekeeper, thus giving more time for mental improvement, while accomplishing better results?

Let us by way of comparison take one branch of household economy—that of the table. Does not the comfort, nay, even the health of the family, depend upon the preparation and cooking of the food? It is the duty of the wife and mother, not only to provide such meats, vegetables and groceries as are brought to the table, but to select them understandingly, choosing that which is best and freshest, purchasing nothing "because it is cheap," and having thus provided, to see that it is not ruined in the cooking.

America has now the unenviable distinction of being the most lavish and wasteful of all nations, a condition brought about, doubtless, by the plentiful yield of our harvests and our overloaded orchards. Yet one traveling from place to place through this succession of states is impressed by the fact that more of comfort and satisfaction might be derived from this abundance of material by a large proportion of our people.

Visit the farms, and whilst partaking of the genial hospitality offered, one can but observe that amidst the profusion of the table, small attention has been given to the rules of hygiene or other scientific preparation of food.

An excellent roast of beef is frequently brought on the table either partially boiled and tough from having been cooked in a half heated oven, surrounded perhaps, by watery, underdone potatoes, or burned to a crisp, with all nutritious juices dried. Again the steak, tender or sirloin, which would alone be the foundation of a delicious breakfast if broiled over clear, quick fire of glowing coals, is placed in the frying pan, there to simmer or sizzle in lard, or other grease, until the remainder of the meal is prepared, including in this preparation the heavy lumps of dough called biscuit.

Do not understand me that such things are products only of the farm. Too often the display of glass and silver on a city table are necessary in order to employ attention that might otherwise be directed to ill-cooked, indigestible food, the work of an untrained cook whose employer is no better instructed.

But this appeal is to those interested in the agricultural districts of our country. Surely the American farmer deserves better treatment at the hands of his wife, daughter and sisters.

On the farm where milk and eggs, fresh fruits and vegetables may be so easily procured we expect the best of living, and the time has come for us to inquire why the expectation is not always realized. There is no lack of provision, the table is bountifully spread, indeed the very profusion sometimes takes off the keen edge of hunger, yet the fact remains that in too many of our homes that condition exists which scientific knowledge would improve.

Have we not followed in "beaten paths" long enough, and how may we be led upon new and more direct ones are the questions we hope may be answered in the near future.

One suggestion which has been made is that through our great agricultural fairs attention may be drawn to the need of improvement in this direction,

and that from them such practical instruction in the use and preparation of ordinary food may be disseminated throughout each district and county of each state as shall remove from us the term of "dyspeptic Americans."

In order to the accomplishment of this end let this meeting of the Farmers' Institute agitate the subject, let each grange, if that is the proper term, appoint one or more members to confer with those of another grange, and they, in turn, report to the county fair as to the best methods, and at the annual fair, of which we are so justly proud, let the State of Illinois show the result, by a practical demonstration, of the simplicity and excellence of household affairs when to a knowledge of chemistry is added the latest development of that mysterious force—electricity.

It may be deemed advisable to secure, at that time, an instructor for a class, the members of which shall comprise one or more from each Congressional district, who shall be pledged to extend the knowledge so gained, and thus let the good work go on.

Various theories have been advanced by those interested in this matter, and as "in a multitude of counsellors" there is said to be "wisdom" I have ventured to add my "mite" to the general fund.

The Chairman: The programme of the session has been completed and the Institute will stand adjourned until 1:30 o'clock to-morrow afternoon.

STATE HOUSE, SPRINGFIELD,
THURSDAY, February 25, 1897, 1:30 a'clock P. M.

The Institute met, pursuant to adjournment, with Hon. Charles Bogardus in the chair, who expressed his appreciation for the high honor extended him in being placed on the program as the presiding officer of the session.

Mr. Bogardus: The meeting will be opened with prayer by the Rev. M. F. Troxell, Pastor Grace Lutheran Church, Springfield.

Rev. Troxell then opened the exercises with prayer, as follows:



REV. M. F. TROXELL.

"Thou hast been our dwelling place, O Lord, in all generations. We bow before Thee as our Creator, Preserver and Redeemer. We praise Thee for the gifts of Thy providence and Thy love. Thou hast led us into a goodly land, and here Thou hast protected and defended us. Thou hast ever given us our portions of meat in due season. The heavens and the earth, the cattle upon a thousand hills, the silver and the gold, all are Thine, but we give Thee homage and praise for that abundance ever bestowed upon us. We thank Thee for these temporal and timely gifts not only, but also for turning the hands and hearts of men to useful labor and skill for their own welfare and the prosperity of all the people. We thank Thee for this organized body of men, who come together to represent the increase of the soil and the growth of flock and herd within our borders. Give them each and all Thy blessing. Guide with wisdom the officers and leaders of the body, and may the convention yield fruits of knowledge, good will and greater efficiency in all

he concerns of these, Thy servants.

Bless our homes, our State, our nation and the nations of the earth with Thy continual presence and wisdom and power. Forget not Thy covenant of old, that while the earth remaineth seed-time and harvest, and cold and heat, day and night, and summer and winter shall not cease. And at last in Thy love and mercy gather us all into that house not made with hands, eternal in the heavens. we ask in the Master's own name. AMEN."

The chairman: The first exercise on our program is an address "Fruits on the Farm." by Hon. H. Augustine, of Normal, who will now address you.



HON. H. AUGUSTINE.

Mr. Augustine gave the Farmers' Institute the benefit of his experience in fruit growing on the farm, describing the different varieties of apples, pears, peaches, cherries and small fruits, and the method of the cultivation which would yield the most satisfactory results for home use and market supply.

Mr. Augustine urged every farmer to devote at least one acre to an orchard, as an outlay of \$15 would supply an ordinary family.

Mr. Augustine turned to the chart exposed on the wall, and gave the following explanation:

The "A" here on these corners is the 48 apple trees which are planted thirty feet apart, that is all the trees a farmer will want for his own use. Here are *nine* cherry trees and *nine* pear trees, also peach trees. About four feet from this apple row. I have one hundred and sixty raspberries.

Plant raspberries and blackberries as near in a row as you can, so that you can get at them as easy as you can a row of corn.

Then I have here a row of blackberries along under here. Now these blackberries will do better under this light shade than they would out in the open ground.

You will always find best and richest fruits where there is some shade, and where the trees that shade them absorb the moisture of the ground.

Here I have a row of grapes—clear through here, four or five of the better variety of grapes.

I have also a row of Concord. I like to extract the juice and bottle it up. Nothing is more desirable than just the pure juice, so I bought a good many of them (Concords).

I have four rows of strawberries taking about five hundred plants to plant them. Then there is the currant, gooseberry, etc.

Any nurseryman in the State of Illinois will furnish all of these for \$15, and this is all any farmer needs—one acre.

I want to speak briefly about the strawberry. Those are the most difficult and yet the most profitable. They can stand for three or four years. In the fall sprinkle a little bit of straw over them, so that they won't get up through. Just take a little rake and rake over them, and the straw will keep your garden nice and clean. I am giving my plan now. When you get through picking the berries, set fire to it and burn the whole thing off just as clean as possible from the ground, and they will grow and make a grand good stand for the next year.

To plant the raspberry, plant them to grow up about eight inches high. Be sure you get the real variety. You can plant an orchard and not have any-

thing at all. A man has no business to plant trees like the yellow bellflower on this prairie soil.

You have no business to plant Northern Spies on this prairie soil. You want to be careful on the selection of varieties.

When you plant an orchard of fifty trees, don't try to get sixty or seventy-five varieties. You want to keep in stock the varieties that answer your purpose and do you some good, so be careful in the selection of these things and not to new varieties.

Here are some apples that have evidently been kept in a good condition. I don't believe in apples that have stood in warm rooms.

We don't understand the keeping of apples. I tell you how I used to do. I have it in my cellar yet. I had shelves made all along about six inches high, and I put my apples on them, so the air could strike them, and picked out the rotten apples, and I hardly got over them before I had to turn around and commence again. They would get spongy and soft. Now when you pick your apples in the fall, wait until they are ripe. Then put the apples into boxes. Be sure that they are perfectly dry—that they are not wet. Put them into barrels and boxes, roll them into your cellar, put little blocks under the barrels, and then don't move that barrel until you have used the apples up. I kept apples two seasons this way, and I believe we ought to pay more attention to the keeping of our apples.

I will now be glad to answer any questions.

Question: Would you grow grapes on sticks or trellis?

Answer: I prefer trellis. I think it is the best way.

Question: You don't state whether you run your rows north or south, east or west?

Answer: I would much prefer north and south, because you get the sun on both sides.

Question: What do you do about the rabbits?

Question: When do you prune?

Answer: I prune along towards spring.

Chairman: The next topic is an address, "Fruit Interests of Illinois," by Hon. D. W. Prindle, of Villa Ridge, Ill. In the absence of the gentleman we will pass to the next subject, "Highway Improvement in Illinois," by Hon. Roy Stone, of the Department of Agriculture, Washington, D. C. General Stone can not be with us to-day, but an excellent substitute has been provided.

Hon. Thos. S. McClanahan, City Engineer of Monmouth, Ill., who has been giving considerable attention to paving country roads with brick in Warren county, in this State, will now address you on that subject.

Mr. McClanahan read the following paper:

PAVING BRICK FOR COUNTRY ROADS.

For the past few years the seemingly all absorbing question has been good roads and how make and maintain them. And what may seem strange at first thought is, that the part of community most in need of them and surely would derive the most benefit from them is, even at the present time, indifferent in regard to the matter of good roads, while those who love pleasure, such as driving either the well trained horse or the expert rider of the wheel, are the ones who really want them.

Now this seeming indifference may be explained in this way: The farmer knows quite well that he needs good roads, but at the same time he well knows that he will have to pay for them, while the lovers of pleasure expect to have their fine drives and pleasant rides on the wheel on an excellent road made by other parties largely.

The road for the farmer, so far as his financial interests are concerned, is a thoroughly drained road; one tiled with good outlets for each and every line of tile. Then kept rolled instead of plowed, and left full width as they are now laid out, sixty-six feet wide, and drained the entire width. This will be a good road for ten months in the year, and every year get better by use.

I venture the assertion that so far as dollars and cents are concerned this is the farmers' road; that is, the farmer who has no higher motive in life than the accumulation of wealth.

To make the above road will require about \$600.00 per mile and no repairs, only to roll when in proper condition for closely packing the soil. This kind of improvement can be made any where in the State, as there are tile plants in almost every neighborhood.

The question now arises, are permanent hard roads through the country needed and for what purposes, if the above named tile roads meet the requirements of the money making farmer? We say yes.

First, that we make a residence in the country as pleasurable and pleasant as in the city, and turn the tide of emigration from the cities back to the deserted country homes, fill up our country school houses with pupils, country churches with earnest and zealous members, that there may be even chances in the country with the city of climbing as high in knowledge and social advantages as it is possible for citizens of any city to enjoy, and this can be obtained only by having good roads for the entire year.

And now the times when the natural earth roads are impassable, are just the times when the farmer has his leisure as the same working of nature that make the roads impassable, such as rain, frost and thaw, put also the farm and fields in a condition that would be neither pleasant nor profitable to pass on or over. We think now that nature is teaching the farmer that now is his time for manual rest and mental improvement, such as can be obtained only by having free and easy access to the best libraries and lecture courses and coming in touch with his fellow man, that it may make it possible for him to attain the height in knowledge and avail himself of the social advantages which the Creator intended he should enjoy, and be a great, broad, good and wise man. These are blessings which are over and above a money valuation. And if we look only to extra amount of dollars gained by having permanent hard roads through the country we will never have many miles of them.

That the above privileges can be enjoyed we must have roads that are not only merely passable at the rate of one-half mile per hour, but such that transportation over them may not only be speedy but pleasurable, either from country to city or from city to country. And further, we want good roads for another line of education, that is, if we have beautiful, clean, well-kept roads, in all kinds of weather, the farmers along the lines of such roads will want their houses, barns, fences and lawns, in fact, all their surroundings, to correspond, therefore the appearance of the whole country is so improved that we do invite emigration from the city to the country.

As we now have determined that we need hard roads, instead of the merely tiled roads first spoken of as the farmer's road, let us make some comparisons of the different kinds of hard roads, in order, if possible, to find which in the end is cheapest and best.

As has been stated many times before by different writers on the subject of hard roads we have neither trap, granite nor gravel from which to build them. We are, therefore, limited to the lime stone that we have in this prairie country, which is by no means a satisfactory material to build roads. Estimating from what has actually been built in this neighborhood, the cost will be as follows:

THE MANNER OF CONSTRUCTION.

First. Large, flat stones laid on their flat sides to a width of eight feet, this covered with screenings until the cracks are filled, then again covered with eight inches deep of crushed stone, said layer of crushed stone being six inches wider than the layer of flat stone, making the road nine feet wide, then graded up to sides with earth, then rolled with seven ton roller, then turned out to travel.

The cost of this is eighty-five cents per lineal foot, and this making no allowance for subgrading. Total cost of making one mile of this road is \$4,488.00, then to keep it in good repair, it must be repaired at least twice in each year, at an expense annually of ten cents per lineal foot, making \$528.00 yearly.

Supposing the road to run for twenty-five years would make the total cost \$17,160.00

Now in regard to the matter of using brick for country hard roads, the first question to answer is, Will it pay? And in order to find out this fact, let us compare it with the cost already found on the stone road for the period of twenty-five years.

SPECIFICATIONS FOR BUILDING BRICK COUNTRY ROADS.

First. I would recommend that the road before it is improved should be as carefully surveyed as a railroad, with plans, profiles and specifications. The importance of the road being the basis to determine maximum grading to be done, and if for very heavy traffic then the grades should be reduced as much as possible, and where the line of road passes over low boggy earth it should be thoroughly tilled and where fills are to be made, this as well as the tiling, should be done at least one year before the improvement is made: then excavate to the depth of five inches with a two-inch crown in the center, then set four by twelve inch sand stone curb, allowing the top of curb to be just nine inches above subgrade. This will allow the bottom of curb to be three inches under subgrade. The curb to be so set that the outside of curb shall stand solid against the bank formed when trenches are dug for setting curb, and the space between curb to be nine feet wide, making a brick roadway of that width between curbs.

After curbs have been set and thoroughly tamped, outside and inside, then roll the subgrade enough to thoroughly pack the earth, then spread clean river or bank sand, free from loam, to the depth of five and three-quarter inches and tamp it well with a tamper, 12 inches square and made of 2-inch oak lumber, with a handle four or five feet long. This will make a tamper of sufficient weight. The tamping wants to be well done and when finished, form a crown of just two inches same as subgrade, so that there will be no places where the sand will be deeper than at other places. And the subgrade should be finished to an exact evenness by using a template; as a very great deal depends upon this in regard to the brick keeping an even contour.

Then set on their edge a single course of brick, cross-wise between curbs, and laid so that their ends and sides shall be close together, and also ended tight against the curbs, and when finished will be three-quarters of an inch higher than the top of curb. Then spread crushed stone two feet wide and two inches higher than curb on outside of both curbs, this also will be six inches deep. Then cover with clean, dry, sharp sand, both crushed stone and brick and sweep until all of the cracks and interstices are full; then roll with a five to seven ton roller, beginning at the curbs and working to center, and roll until the bricks are reduced even with the top curbs, then cover with one-half inch of clean, sharp sand.

Then we have a road-bed which is thirteen feet and eight inches wide. If the brick are equal in quality to the Galesburg paving brick, such as were furnished to the city of Monmouth when the said city made her improvements, then we will have a road that will not only be a pleasure to ride or drive over, or transport heavy traffic over, but an ornament to the country and good for twenty-five years, without any repairs except the repairs that may have to be made on the outside macadam.

The expense of one mile of this last described road, width being 13 feet and 8 inches, 9 feet of which is brick, is as follows:

721 yards of excavation, at 20 cents per yard	\$144 20
10,560 lineal feet of 4x12 inch sandstone curb, at 16 cents per foot.....	1,689 60
15,840 sq. yds. of paving brick, at 60 cents per yard.....	9,504 00
880 tons of sand, at 65 cents per ton.....	572 00
Spreading sand and laying brick, 5 cents per yard	792 00
264 tons of crushed stone, at \$1.50 per ton	400 00
Engineering expenses.....	50 00
Total.....	\$13,151 80

The above brick to be made of shale and thoroughly vitrified through and to be smooth and free from cracks or crooks, then and only then, you have a road fit for traffic, pleasure and beauty to the country through which it passes, and also so far as dollars and cents are concerned, the cheapest, except the tiled road spoken of first, which is not pleasure producing, only for a part of the year.

By using 3x12 oak curb can save \$639.00.

THOS. S. McCLANAHAN,
City Engineer.

Mr. Palmer assumes the chair.

The President: Ladies and Gentlemen of the Institute, owing to the unavoidable absence of the speakers on our programme for the evening session no meeting will be held and the exercises of the Illinois Farmers' Institute is now completed and the work of the Second Annual Meeting for this year is finished.

The Institute then adjourned *sine die*.

CONVENTION OF DELEGATES, ILLINOIS FARMERS' INSTITUTE.

SUPREME COURT ROOM,
STATE HOUSE, SPRINGFIELD, ILL.,
THURSDAY, FEBRUARY 25, 1907, 4 O'CLOCK P. M.

The convention of delegates, representing the County Farmers' Institutes of the State, met as per adjournment.

Called to order by President Palmer, who stated the object of the meeting to receive the report of the committee on resolutions, and to transact any other business that might properly come before the convention.

The committee on resolutions presented the following, which was adopted:

WHEREAS, Great good is being accomplished for the common people of this agricultural State through and by means of liberal discussions of practical and every day subjects at farmers' institutes, adding greatly to the store of general intelligence and to the prosperity of that large class of our people upon whose success all interests are largely dependent; and

WHEREAS, The Thirty-ninth General Assembly, having confidence that representative farmers, selected by the farmers themselves, could manage the institutes most cheaply for the State and most successfully and profitably for the people generally, created the Illinois Farmers' Institute and made it one of the public corporations of the State; therefore be it

Resolved, As the sense of this meeting of delegated representatives of the farmers of this State that no backward step should be taken in this matter. We desire to express ourselves as unalterably opposed to the institutes being made an adjunct to any other organization or institution. The farmers of the State need no guardian nor conservator. We ask only at the hands of the General Assembly a fair appropriation, in keeping with this great interest of our State and in proportion to that appropriated in neighboring states, pledging ourselves that every dollar so appropriated shall be supplemented by other dollars, all of which shall yield a hundred fold in the added intelligence and improvement of our rural citizenship; be it further

Resolved, That a committee be appointed to coöperate with the legislative committee of the board of directors of the Illinois Farmers' Institute in securing needed legislation.

Committee report favorably and recommend its adoption.

Motion adopted. That the Chair appoint a committee on legislation to secure appropriation necessary to successfully conduct the county and State institute work.

Motion adopted. That the delegates in convention assembled recommend that the directors arrange to have the next State Institute held the last week of February, 1898.

Adjourned *sine die*.

F. M. PALMER, *Chairman*.

CHARLES F. MILLS, *Secretary*.

MINUTES ILLINOIS FARMERS' INSTITUTE.

STATE HOUSE, SPRINGFIELD.

MONDAY, DEC. 7, 1896—2 O'CLOCK P. M.

The directors of the Illinois Farmers' Institute met in special session on the call of the President.

Present: Messrs. Colledge, Dean, Inglis, Mills, Palmer, Robinson and Winn.

President Palmer stated that the meeting had been called for the purpose of making preparation for the institute for the coming season and to complete preparations for the next Illinois Farmers' Institute.

Motion adopted. That the President appoint with himself a committee of three on program for the next annual meeting and that said committee be authorized to complete all the arrangements for said meeting. The President appointed as his associates on said committee Messrs. Davenport and Mills.

Motion adopted. That the President and Secretary, with three members to be named by the President, constitute the committee on legislation. The Chair appointed Messrs. Inglis, Moore and Robinson as the three additional members of the committee on legislation.

Motion adopted. That the President be authorized to appoint three men from each county as an auxiliary committee on legislation.

Motion adopted. That Messrs. Palmer, Inglis and Secretary Wilson be appointed a committee to secure a permanent office in the State House for the Illinois Farmers' Institute.

Motion of Mr. Robinson adopted. That each member of the board be allowed two hundred copies of the annual report of the Illinois Farmers' Institute for distribution in their respective districts.

Adjourned to meet at the St. Nicholas Hotel, at 7 o'clock this p. m.

EVENING SESSION.

ST. NICHOLAS HOTEL,
SPRINGFIELD, Dec. 7, 1897.

The board met as per adjournment.

Called to order by President Palmer.

Present: Messrs. Colledge, Dean, Inglis, Mills, Palmer, Robinson and Wilson.

Motion adopted. That for the purpose of encouraging County Institutes to make further improvements in the very satisfactory programmes heretofore arranged for institute meetings that a first, second and third premium be awarded for the first, second and third best programmes prepared for County Institutes held in this State the coming season. The committee to consider:

First—The adaptability of the subjects presented to the agriculture of the county in which the institute is held.

Second—The range and scope of the topics presented and best calculated to assist and encourage useful education among the farmers and tend to the further developing of the agricultural resources of the State.

Third—The mechanical appearance and convenience in form and arrangement of topics.

Fourth—The advertising patronage and revenue derived in connection with the publication of the programme.

Fifth—New features best calculated to advance the interest in Farmers' Institute meetings.

Motion Mr. Colledge adopted. That the president appoint a committee of five to collect and make a display of agricultural products of the State at the coming annual meeting of the Illinois Farmers' Institute.

The chair appointed as said committee Messrs. Dean, Beal, Colledge, Goodrich and Gurler.

On motion the board adjourned subject to the call of the president.

ST. NICHOLAS HOTEL, SPRINGFIELD, ILL.,
MONDAY, FEBRUARY 22, 1897—7:30 O'CLOCK P. M.

The directors met in special session on the call of the president.

Meeting called to order by President Palmer.

Present: Messrs. Colledge, Dean, Mills, Palmer, Robinson and Wilson.

The president stated that the meeting had been called for the purpose of conference in reference to the three days' session of the Illinois Farmers' Institute to be held the three ensuing days.

Motion of Mr. Colledge adopted. That Mr. T. W. Wilson be appointed sergeant-at-arms for the sessions of the annual meeting.

Motion of Mr. Colledge adopted. That in making report of the condition of Farmers' Institute work in the several Congressional districts directors be limited to ten minutes each, and that delegates making report of County Institutes be limited to five minutes each.

Adjourned subject to the call of the president.

SUPREME COURT ROOM, STATE HOUSE,
SPRINGFIELD, FEBRUARY 25, 1897—5 O'CLOCK P. M.

The directors met in special session on the call of the President.

President Palmer in the chair.

Present: Messrs. Bartlett, Beal, Colledge, Grout, Mills, Palmer and Wilson.

The President stated that the meeting had been called at the request of Mr. Thurston, who represented the agricultural press, and desired to address the directors on the bills relating to Farmers' Institute, now pending before the Legislature.

Mr. Thurston presented the following bill, which had been agreed upon by the agricultural press and which he believed would meet the approval of the county Farmers' Institutes of the State:

A BILL.

An act to encourage the organization of County Farmers' Institutes, to establish a Farmers' Institute Bureau at the University of Illinois, and to appropriate moneys therefor.

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly:* That when the citizens of any county of the State shall form an association and conduct farmers' institutes of the character and under the conditions herein described, said association shall be known as the Farmers' Institute of such county, and shall become entitled to all the benefits of this act.

SEC. 2. That a Farmers' Institute Bureau shall be established by the Trustees of the University of Illinois, said Bureau to constitute a department of the College of Agriculture of the University, and be subject to the regulations adopted by the Trustees of said University.

SEC. 3. That it shall be the duty of each County Farmers' Institute to hold at least one meeting each year of not less than two days' duration, and of such character as shall tend to the dissemination of scientific and practical knowledge touching agriculture in all its branches, and to the discussion of measures having in view the improvement of the farms and homes of the farmers of the State.*

SEC. 4. That the duties of the Institute Bureau shall be: To cooperate with local enterprise in maintaining an efficient Farmers' Institute in every county in the State; to disseminate throughout the State scientific and practical knowledge touching agricultural affairs; to be active in extending the benefits of agricultural education; to initiate and carry into execution along scientific lines plans for developing the agricultural resources of the State, and acting under regulations imposed by the University, to employ persons of exceptional technical ability and effective practical experience to assist in the conduct of institutes: *Provided, however,* that no part of the recompense or of the traveling expenses of any person connected with or employed by said Bureau shall be charged to the county institute.

SEC. 5. That in order that a farmers' institute may be entitled to the benefits of this act, the proceeding shall be as follows: The program shall be arranged by the officers of the local organization: *Provided, always,* that but one organization in each county shall be entitled to the benefits of this act: *And, provided further,* that the amount paid to a single organization shall in no event exceed the sum of fifty dollars (\$50.00) annually.

SEC. 6. That the sum of five thousand one hundred dollars (\$5,100.00) per annum be and is hereby appropriated, to be paid and expended as provided in section five (5) of this act.

SEC. 7. That the further sum of five thousand dollars (\$5,000.00) per annum be and hereby is appropriated to maintain said Farmers' Institute Bureau, and the Auditor of Public Accounts is hereby authorized and directed to draw his warrant on the treasurer for the same in favor of the Board of Trustees of the University of Illinois, upon the order of the chairman of said board, attested by its secretary, and with the corporate seal of the University.

All acts or parts of acts conflicting with the provisions of this act are hereby repealed.

The bill was discussed, but not favorably considered.

Motion adopted, that a meeting of the Board of Directors be held in the office of the Illinois Farmers' Institute on Tuesday, March 9, 1897, at 10 o'clock a. m.

On motion, the board adjourned.

F. M. PALMER,

CHARLES F. MILLS,

President.

Secretary.

FARM FINANCE.

The following paper, by Mr. Henry B. Rankin, of Jacksonville, Ill., was read before the Menard county Farmers' Institute:

I believe there is a place for financial thought, and system, in our farming at all times. The farm and its affairs, many years ago, ceased to be those ruled only by wind and weather, by the moon and zodiacal signs, coming and going.

Farming is a business not only possible under strict financial rules, but it is one that, more than most other businesses, needs to be pursued with all the active exercise of forethought and sagacity, which is claimed for some other departments of industry, more strictly commercial and financial. The complicated and changing relations the farm has with natural laws, on one side of its work, and to financial and commercial on the other, demands the best sagacity there can be in financial management to conduct its affairs, if they are to be successful, or pleasant while he performs them.

Any business having connected with it the two sides of revenue and expenditure, is a financial one. These are two parts of farm management requiring constant attention by those engaged in it. The proper balancing of what is received with what is paid out, in order that there may be from the farm a surplus credit and not a debit deficit, are ever present questions in the management and work on a farm. The doing of this, the ways and means of producing this result, is what your program committee, no doubt, meant by the term, "Farm Finance."

The spending of more than the farm's income, or revenue, brings, can only end in the collapse of the farmer's capital, if it is continued long enough. On the other hand, a surplus, be it even a light one, may be depended on as certain to bring improvement into every part of the farmer's affairs, and if continued it will surely introduce any farmer who thus conducts his farm affairs into that part of finance not to be considered in this paper, viz, that of "Farmer Investments."

But to have any genuine finance on a farm, you must have the right sort of a practical man for the farmer, and with him the right kind of a farmer's wife to help him over the sharp turns farm life must expect, and is sure to have.

Climate, soil and markets are each important but all, and every one of them, are a secondary part to get success out of, compared with the first two mentioned. When the farmer is named in this paper both of the firm, as just stated, are meant. With this kind of a firm on the farm, acting unitedly—both "new" in the better sense of that word—with such a firm, financial methods become possible, and may be applied to farming.

This style of farming, as distinguished from that of "luck," and "accidental good fortune," means active exercise by both hand and head of those engaged at it, along lines of good common sense methods. It requires a growth of daily interest in the farm work, which can enable the farmer to meet the future a little in advance of its needs. It puts all the members of the firm to planning their affairs in harmony with each other, build up and work out, a system of their farm life that can, and most generally does, win all the possibilities within sight of their business.

We are living in a time, my friends, when all kinds of successful business is thought out, before it is worked out. This thinking of it out, if well done, must be done by him, or her, who will work out the plan afterwards with the vigor of their own hands, or personal presence, when and where the enterprise is being carried on. I hesitate—I feel like laying aside my pen, as I write down these sentences. They are to be read before men and women, who are actively engaged working out the daily problems of farm finance! I deeply sense how much less competent I am than many of you are, to present this theme properly. Finance can not be talked out or written up in sentence-parcels, to carry home with you for use as wanted. Farm finance, like finance for any other business, must be won by silent thought and steady work, with each individual worker standing in his own place, and doing his

own work, in his own way. Advice is good, or not, as it is wise, or otherwise. Suggestions may be valuably suggestive, but both require that, to be of any value to the one receiving them, they first must be made part of a real earnest worker. These things all end up, at last, and depend upon the cheerful spirit and personal will a farmer carries into his business, and keeps there. To see a variety of things promptly, and act on the most important ones first; and, again, to discontinue, or get out of the way of others, these are both a part of that study your committee named "Farm Finance." This should not imply that the farmer may do wisely who changes his style of farming often. True farmer forethought does not take into account one year's farming only. Where there is to be such a policy as farm finance practiced, the plans determined on will usually be those requiring several years for their being worked out. The success of such plans depends on the good practical judgment in which they were conceived, and then their being carried out in a steady, long, business like manner. With this should go one special caution, which farmers need perhaps more than some are aware of, the caution in all their business affairs, to not undertake more than they can do well. Then, if they have taken too large a share, don't abandon the job too suddenly.

Many things among farmers' affairs have an extent, or size, which they must be brought up to before they can begin to be profitable. The same affairs also have a limit where, if he goes beyond, and engages in them too largely, his failure may be expected. There are limits to even enough. The secret of success lies more in knowing where to quit than in any other one thing, except it be in knowing when not to quit. It is a farmer of true financial wisdom who plans his various affairs, and keeps himself and family so well acquainted with them, that he has within his reach a line of retreat, or who keeps on the lookout for those turns in business affairs where, if he needs to "slow-up," he can do so without shaking his business into financial suicide.

One of the most valuable lessons a true farm finance can teach is that of knowing when the farmer has more of his own or somebody else's capital than he or his style of farming can invest profitably, and then, when this is so, to not hesitate to pull in his line of business to a safe and sure sailing basis. A retreat is no less honorable in finance than it is in war. Pity it was not more popularly considered so, and commonly practiced. To accomplish this gracefully, I know of no better way than the farmer's taking, at least once, annually, a truth-telling invoice of all stock and values he has engaged in his business. It is far easier to do this, if the farmer has formed the habit of making all his receipts and expenditures a matter of book entry during the year. Both of these habits, when once fully adopted, and truthfully followed, are the best educators in bringing farming into good financial line that I know of. They can show to any farmer, who thus brings his business onto paper, many things which he probably would not otherwise find out until too late to remedy them.

There is no other business which has such power within itself to control, or limit, its expenses, inside of, and according to, its income as that of farming. This is the principal and most lasting advantage farming has over nearly every other business, and which thus pulls it safely through periods of financial depression. The main trouble to the farmer who keeps no books, never takes an invoice of his business, who can not say precisely how he stands, on a valuation based on the actual market value of his property, any one year compared with another—the main trouble of such a man on the farm, is that his bookkeeping is done too much by other people—his banker, his merchant, manufacturer, and retailers generally. On receding markets such a farmer's name gets heavy on too many pages, before he knows it is heavy himself. It is inexcusable for any farmer to permit other people to know more of his business than he does himself, or who pursues it with a method which makes such a situation possible. Home bookkeeping and an annual balance sheet would have saved many a farm and brightened many a home.

The farm looked at through these books and invoice, will show many errors that can be corrected, and this can be done in a timely manner, hardly any other way. Such books or invoice often show to the farmer that it is not

good farm-finance to devote his best thoughts and energy to those departments only which he likes to do best. Certainly no one wishes to tell stories to himself on his own invoice, to deceive himself, though, peradventure, to deceive other people, such things have been attempted, with indifferent success.

Financial method applied to farming, and guided through a truth-telling invoice, will often lead a farmer to make a severe pruning of his business along the line of his likes and dislikes, and put it on a line of better discrimination, which makes profit and loss the test of how he will direct his affairs as to what he will do and what he will not do. It is the vital part of a wise farm system to learn to do those things first which need doing most, and promise the best returns, irrespective as to whether the doer likes to do those things better than other ones or not.

There needs to be a judicious watching after an assignment of the necessary labor to do the many little things, indoors and out, all around the farm, which should be kept "evened up," so that principal things, those to be main dependencies for revenue on a farm shall not suffer because of little frictions and leaks. No preparation can be too complete to get ready, and keep ready, fully and completely so, to take up the principal things at their beginning, and never should the farmer allow his best energies and first attentions to be drawn away from the principal sources of his farm's income.

This whole matter of doing real well, and timely, the things one likes to do, and half-way doing of everything else, is the cause of most farm failures, and, possibly, most others. This manner of doing farm business is foreign to everything which should be found in proper financiering. Most of us may need to be in heaven before we can find ourselves entirely satisfied with the job we are to be put at, or the shape it is in when we have to take it up and push it through. But if the farmer gets down at his own affairs, in a real financial way, he will find it is not so much the thing he is doing, only, but the way—the real, sincere, faithful, way he does it, and the end he has in view while doing his work, that can make a man out of him, and will make a success out of his business.

If we were to ask a financially successful man, past middle life, one of those self-made ones who had not a crank or a fool for a tutor, a man who is in the active prosecution of his affairs, if we were to ask him the secret of his success, and desire him to tell us how to repeat it in other lives, he probably could but indifferently do so. Such a man (if not too much in love with himself, to be able correctly to know himself) such a man would probably say his success was nearly as much a subject of question—almost mystery—to himself as it could be to the enquirer. He probably had not felt, while at his work, that he was doing great things, or doing common ones with marked success. It was to him a matter of each day doing his best on that day—seeing forward as far as he could—and then, to-morrow, trying to repeat such yesterdays! In some such manner as that such men have made their way, and this is about all there is needed to get success by financial methods in farm life, or any other. You can't do all the work at once. You can't see all the way at once. You may need to stand battling, sometimes, with little apparent progress or sometimes, as at the present time, beaten backward. But the resolute grip of some purposeful plan being worked out each day, and looking forward from it so that every new day can repeat such yesterdays, this will come as near forming an invincible line of farm life as can be found. It may not win success, but it can do better—royally deserve it!

The study of farm finance, which may be done by any farmer, about his own affairs, from his own front porch, can be of far more personal value to him and his family, than devotion and study of all the golden talk that was proclaimed from that Ohio front porch a few weeks ago—with all its protection promises by Mr. McKinley. The platform of farm policy which you resolve to carry out, in and around your own place, for the next four years, have results for any member of this Institute, in his own affairs, far more effective than any which were distributed from railway platforms in silver gloss financial oratory, a few weeks since by Mr. Bryan.

Farm finance has wider fields than the mere making of money for money's sake; or by adding acres to acres, and covering their fertile surfaces by fields of abundant crops, or fine herds of stock. These are all desirable, and the use of financial methods in securing them, a proper one. Yet all the

while it should be remembered that they are only a way—a means—to something better, and not an end. The high end and crown of success which awaits, and invites, the farmer's best financial skill, is the building, the growing into the daily life of the farmer and his family of a true Christian manhood. No sadder sight is ever presented than can sometimes be seen on a farm, in the farmer who is, in both body and soul, bound up by all his thoughts and intents in financial farm finance. To carry the efforts for developing lands and amassing farm property to the extreme of miserliness, dwarfs and shrivels the soul more, even, than years can the aging body. This is entirely uncalled for, unnecessary, and most foreign to those sunny and broadening influences farm life invites to, and can help build up in the character of those who devote their lives to its pursuit. The farmer may not have so many thoughts as his professional and city friend, but they have every opportunity to be wider, higher, and better ones. They are worth more for building into character the best that can be received into life here. Should it not be the highest mission of a correct farm finance policy to so use these opportunities? I think it is worth trying for.

To the end that the financial part of farm business may not wholly absorb the farmer and his family, and thus leave them too little inclination for mental and moral culture, the farmer should, all the way through the planning of his affairs, keep some liberal portion of time set apart for cultivating and enjoying, by himself and family, qualities and aims which this life has no quotable market for, yet are of highest demand and value in every market. It is the possession of such which can make their lives wholesome and companionable while at their daily avocations, and worth taking with them into that undiscovered country from which no traveler ever returns. It is worthy of the best financial planning all the while to be preparing for entering on those promised possessions where One who spake as never man did, has gone to prepare for us, that where He is we may be with Him. The farm finance which does not keep in view, all the way through its plans, this part of life's business, needs reconstruction and putting in better proportions.

INDIAN CORN—ITS CULTIVATION AND USES.

By Hon. Stuart Brown, Springfield, Illinois.—Read before the Sangamon County Farmers Institute.



STUART BROWN.

The Indian corn crop of the present year, notwithstanding its low price, is the most valuable single possession of the people of the United States.

The value of the grain alone is more than \$800,000,000, not to speak of what may be called the bye products; and yet so far as I have been able to learn there has never been but one small book published having Indian corn for its title. There is no other single product of the world that feeds more animals, pays more interest, runs more railroads and has built up more cities, not even excepting that great grain food of the east—rice. There is no other commercial plant that grows in more places, soils and climates from 50 degrees south to 50 degrees north than this, and no subject upon which there is a greater diversity of opinion from its origin to its final proper use. It is a gross misuse of terms to speak of the corn belt, and yet it certainly grows more luxuriously near its northern border and we may justly claim to be situated almost at the geographical center of its best area.

Among the few useful plants contributed to civilization by the American continent were tobacco, the potato and Indian corn. It has been claimed by some writers that Indian corn is of Asiatic origin, but the weight of authority seems to be that it is of South American birth. The botanical name is *Zea mais* or *maize*, from Greek *Zao* to live, and Livonic *mais*, bread. It is an herbaceous plant of Gramineae family, with monocotyledenous seed, crown roots, endogenous stem and is monoecious. These are formidable words, but translated into Illinois simplicity mean that it is a plant having green cellular stalks, of the grass family, having single piece seeds, no tap root like a tree, growing from inside and fertilizing itself by two separate flowers on same stalk.

Some preliminary knowledge would seem to be required of the characteristics of the plant before attempting its cultivation.

Look at an ear of corn and see how carefully Mother Nature has protected the vital principle of the seed from wind, frost, rain and air. First the leaves shade and roof it, then the husk and the silk clothe it and keep it warm. Then the kernels are fastened securely to the cob. How cunningly the embryo is flanked and protected by the other seeds; how carefully it is placed on the under side of the grain; how providently it is surrounded by soft endosperm to allow it to swell and grow, and white nitrogenous matter to feed it in early life; how artfully this is guarded by hard flinty materials and armour-plated by the tough, glossy outer skin. Any one would exclaim on a most casual examination that here was a plant fitted to go through cold winters with little care. In the spring when, by the New England rule, the apple blossoms begin to form or by the Indian rule when the oak leaves are the size of a squirrel's ear; in other words, when the temperature is above 48 degrees Fahrenheit, plant this kernel about an inch or two below the surface in moist ground. There the germ will swell in the water, and when touched by the oncoming spring heat its broad end will break through the point of the kernel in many small roots which hurry to bury themselves in the darkness below, while the point will spring from the side and reach out toward the light and air. The roots move first and move rapidly, going 15 to 18 inches before the stem is three inches high, because they are the feeders. These roots spread out like a crown and seek the food. In rich, tenacious soil they only extend two or three feet, but in light, poor soil they sometimes run fifteen feet. They seem almost intelligent in seeking just the elements necessary and going no further. It is a mistake to suppose they feed only from the point of the root, for each root is covered by innumerable fine hairs and each one of these is engaged in pulling the water from the soil which contains in solution the mineral and vegetable elements needed. After the stem has grown and become weighty enough to need further support a number of large roots issue from the first joint and grow down and out through the soil, thus anchoring the plant to the ground. The seed has now performed its office and has become absorbed in the plant.

Now cut a stalk across and see what the word endogenous means. You will see that it enlarges by the growth of new wood in the center and not by external layers like a tree. You will notice it has no bark that can be peeled off; that it has no central pith, but that there are a number of ducts somewhat uniformly distributed, though less abundantly toward the center. Where the stem branches or where the leaf stalks are attached is a net-work or node. Cut the stalk lengthwise and you can tear out these bundles like strings.

The circumference is the harder, because the older wood, and after the stalk has grown a certain amount it can not push out any more and the sap from the roots turns into the ear. Before, however, the stalk has made much progress, the leaves have pushed out. They are the lungs of the plant. They exhale the water that has been robbed of its growing elements into the air during the sunshine. Experiment has demonstrated that one corn plant between May 22 and September 4 breathed out thirty-six times its weight in water. During the night they breathe in the various gases needed for growth. Soon the tassel comes and a fine impalpable dust is formed on it. This powder is the pollen or fertilizing power of the plant and is ready to be used by the time the silk is grown.

The silk is fine, delicate hair that grows out of the cob, each fiber having an ovary at its base that will be a kernel if fertilized by the pollen. When the wind shakes the plant it dislodges the pollen, which falls upon the silk below and the kernels begin to grow. When the kernels begin the silk dies, and only is of use as a covering for the delicate seed, but the tassel seems to take up some part of the leaves and the best practice seems to be to leave it upon the plant.

Paradoxical as it may seem when the farmer is ready to plant his corn kernel a great part of his labor should be already done. Premising that he is tolerably well educated, that he has amassed a certain amount of property and has invested it wisely and well in the necessary farm implements, animals and household goods, still many anticipatory questions press upon him and call for the best knowledge of himself or others.

First, what kind of soil on the farm is best adapted to my crop of corn and how shall I treat it to produce the best results? And right here he will find the greatest diversity of opinion and such alarming differences on each question that arises that he will be almost in despair. Yes, corn will grow on light and heavy, clay and vegetable, rich and poor soils, but what he wants is for the present crop to produce a profitable return. If he stops and examines carefully, however, he will decide that his corn-field should be well tiled, especially if it is inclined to be wet and has a clay subsoil like our lands in Central Illinois. For although the majority of seasons have not too much rain, still this present season may be wet, and now is the time he wants success. He will also decide to take a rich, loose, pliable, warm, porous, deep soil, for although you can get soils too rich for some products, corn is a gross feeder and likes a soil abounding in organic matter. He can ascertain all these requisites by a little labor with a spade, excepting the richness and adaptability of his soil.

Surely chemistry can solve these latter questions for him. Chemistry can tell the contents of the soil and also of the maize plant down to the smallest fractions of one per cent., and should know what his soil lacks. But this is not all that is necessary. The requisite elements may be there and yet not properly combined at all. The requisite elements to produce maize are present in a tombstone. Yet it would hardly be profitable to plant there. Chemistry can not tell him whether the elements are soluble and adaptable. This can alone be determined by experiment. He may obtain this by many years of experience or he may reach it somewhat quicker by many experiments in one year, supplying different materials and in different ways, in different parts of the field and taking one part as he finds it. If several of his materials do not have a yield in excess of the natural field he may fairly assume that they are already present in his soil in sufficient quantities. One thing he may be certain of, and in which all the best experience is agreed, that he may expect a greater yield from that portion of his field which has for the last five years had different crops upon it each year, and that he will have a lighter yield from the portion that has been steadily cropped in corn.

Let us suppose it is October and that his field has been in clover. Shall he plow it now or wait until spring? If he plows shall it be subsoil deep or shallow? Shall he manure it or fertilize it, or both, and shall it be done now or later—and how?

On these questions, as on all others, there are many men of different minds. The arguments in favor of fall plowing are that—

1. It can be done at a time when the farmer has most time to attend to it properly.
2. Decomposition has time to set in and a much larger share of plant food is ready for the young plant.
3. Work can be done at one-half the cost than during pressure of spring work.
4. He exposes insect life, especially corn root worm, ants and lice to frost.
5. Frost has a better chance to break up soil fine.

Its disadvantages are that heavy rains during winter and spring may pack the ground so that the work has to be done over.

The advantages of spring plowing are—

1. That sod and stubble may be pastured up to time frost leaves the ground.
2. Surface weeds do not get a start.
3. When plow and planter are within a few hours of each other, there is always sufficient moisture in dryest season to insure perfect germination.

Its disadvantage is that decomposition does not have time to take place.

Our farmer after this review determines to plow in the fall, and as he has a rich soil concludes that he will plow a medium depth so as not to embalm his surface materials and prevent the oxygen of the air from hastening the decomposition he wants. And now shall he use fertilizer or manure? He talks with his neighbors, reads his agricultural journal and any books he may find that treat of the subject and finds a whole host of fertilizers, all highly recommended.

Pondrette or prepared night soil.

Guanos.

Bone dust.

Phosphate of lime (that is bone dust and sulphuric acid.)

Wood ashes.

Ground gypsum or plaster.

Lime (burnt shells.)

Salt.

Fish and guano.

Nitrate of potash.

Nitrate of soda.

Sulphate of ammonia.

Phosphate of magnesia and ammonia and a great multitude of patent combinations under various names.

They are very attractive and are all advertised to be just the thing for him but they come very high and he concludes that central Illinois will probably need them some day, but not now, and that fertility is all right, but it must be at a profit.

Out of all his reading, however, he is impressed with the fact that rich soils will absorb more fertilizer than poor ones, and that the best plan is to feed your land before it becomes hungry. He sees that corn is said to need phosphoric acid, ammonia, nitrogen, potash and lime, and that a continued cropping without returning to the land that substance which really produces a crop is bound to exhaust it.

He is, however, very much encouraged to find that the very material, the clover, already on his land, is one of the of the greatest accumulators of nitrogen known, that it shades the soil in hot summer; that its leaves continually fall and form a covering; that its roots are the great acid makers on account of their great growth and rapid decay. He also finds that wood ashes will give him potash and lime as well as many other requisites of soil and that the heap in his stable yard will furnish him much excellent ammonia and phosphoric acid, and he concludes that he will use as much of this manure as he can make. Common sense teaches him to put it on the highest and dryest part of his field. Common sense and his reading tell him that the chief object of all manure is not so much to directly feed the plant as to produce chemical combination in the soil so that the manure will be soluble and the tiny hair roots of the corn can take it up. He therefore concludes not to dump it on the ground in great lumps and coarse material, but to put it on well mingled, well rotted, finely cut up and as much of the liquid form as possible.

But when?

The best authority he can find says for fall plowing spread it and then turn it under. For spring plowing haul it out and spread as fast as made. But now another weighty question presses upon him where the greatest doctors disagree. He has read that only a fool can expect to raise a good crop of corn with poor seed, that no matter how good a soil he may have or how much labor he puts upon it if he has not good seed it will be a poor yield. What variety of the 1,500 different kinds shall he use and how select the seed and know they will germinate?

One of the most remarkable things about Indian corn is the facility with which it changes its form and habits to conform to the locality in which it is planted. It is generally thought that the original was a short stalk bearing a small pithy cob about one-half inch in diameter. Each grain was in a separate husk or sheath and was small, flinty and pointed at cob. What is now called the Oregon variety is more nearly like the original than any other. By cultivation near or with other varieties the cob increases in size and the separate husks disappear. Descending and departing from this original the varieties have become innumerable. Each country, climate and soil having its own, so that an extensive collection of Indian corn would contain specimens of stalks from 18 inches high to as many feet, and ears from the size of a finger to the forearm. Within the last 30 years the character of the Illinois varieties has largely increased in size and yield.

Many different tests have been offered to distinguish the varieties.

1. Color.
2. Number of rows on cob.
3. Size of grain.
4. Form and hardness of grain.
5. Chemical composition of grain.
6. Color and size of cob.
7. Length of time in maturing.

The only classification used at the Illinois Agricultural Station at Champaign is early, medium and late, and dividing each of these into rough or smooth. After placing them thus they designate them by names as Learning, Murdock, etc. It is noticeable, however, that even in the same locality a corn classed as a medium last year may be early or late this year. Varieties of same name coming from different places are materially different and those of different names turn out to be the same.

Seven years' careful experiment at the Illinois Experiment station has demonstrated that the medium maturing varieties are the best for central Illinois. For those seven years the medium (before September 30) averaged 65 bushels of air dry shelled corn per acre, the late (after October 15) 53.5 bushels.

The most important thing to be fixed in selecting a variety is to determine the precise properties you want in the crop. Different varieties may yield equally well and yet not suit your special purpose. Large, deeply dented, rather soft corn is best for feeding, white dents for meal, white flints for hominy. Northern corn for whisky and feed because it contains more oil by 6 per cent. than southern corn. Starchy corn for glucose. Southern corn makes best bread.

All the great yielding varieties have been developed by careful selection and care, just like the trotting horse.

The manner of cultivating for a pedigree is substantially the same in all. Having planted a field of corn from the best seed obtainable and cultivated it with care the farmer personally searches the field for a few ears of corn the finest samples in ear, stalk, tassel, and growth, paying most particular attention to the uniformity or evenness. These ears he picks when the husks are growing yellow, pulling them off, ear, husk and all, and hanging them up where no wet can come to them in the house and letting them dry thoroughly, and keeping them dry and warm all winter. In the spring he selects a good piece of land, tilled and far from other corn, and plows and

enriches it in the best possible manner. Here he plants his selected seed, three in a hill and far apart; cultivates it thoroughly, pulling off all suckers, destroying every stalk defective in growth, ear, shape or tassel.

In the fall he selects his needed number of breeding ears for next year's patch, and saves carefully the balance for his corn field. So on from year to year, improving on everything until he gets a constant, even type. The best general rule that can be given as to variety is, avoid extremes of size or maturity. Do not use untried varieties. Never go 25 miles north or south for it.

The subject is of such importance that I may be forgiven for giving a set of rules for the selection of seeds.

1. Find best variety in your neighborhood for your purpose and prefer quality to size, medium maturing and smooth kernels.
2. Select seed from stalk having most ears, taking best from each stalk.
3. Take earliest ripe.
4. Choose stalks bearing ears nearest ground.
5. And of these choose ear nearest ground.
6. Select large, fair ears and kernels of a bright clear color.
7. Prefer ears in which rows are most regular and compact and grain most uniform in size.
8. Choose ears that taper, the least having butts very little larger than the tips.
9. Select such ears as grow on shortest foot stalk.
10. Take ears well filled out at tips with grain covering extreme end of cob.
11. If you plant seed not raised in your own vicinity, go north rather than south.
12. The next season have your own seed patch and raise a variety to be known by your name.

Considering the great influence corn has on its neighbors, and the ease with which pollen flies, it would greatly help a locality to improve the seed if all the surrounding farmers used the same variety. In some places and years mixtures of good specimens of like varieties have given increased yields, while in other years and places the same mixtures have given less.

Cross fertilization has generally given greater yields. It is done by planting with one variety in one planter box and another variety in the other. Removing the tassels of one variety before they give pollen and allowing those stalks to be fertilized by the other row.

It may also be remarked that white corn yields slightly better than yellow.

Having selected a good variety and good samples of it for seed, the farmer takes the ears of seed and hangs them up in some unused room in his house, allowing free circulation of warm but not hot air around them. In the spring, when the proper time has come, if he is wise he will disk or shallow plow his field over again and then harrow it both ways. He will take down his seed corn, cut off the tips and butts and use the middle kernels, but he must be most careful to know that they possess the germinating power. Many farmers depend on the weight and color of the grain. For this the more provident cut open the embryo or chit receptacle, and if they find the color of the chit clear and not dark, that it breaks off sharply and does not bend, and if it tastes sweet and not bitter, they are satisfied. The wise farmer constructs a shallow box and tries his seed in the house to see if they will sprout properly. He is now ready for the planting.

Many farmers steep the seed in water or some weak chemical solution of saltpetre, nitre or tar, and claim for it that it quickens germination and fortifies seed against insects and birds. This does not however seem necessary in Central Illinois now. The largest yield in the seven years' experiments at Champaign, before alluded to, was by planting May 11 to 16, but there was

little difference between planting from April 27 to May 23. After May 23 up to June 17 the decrease of yield was constantly larger the later planting. Having decided upon the time as the first favorable days after May 5, the farmer asks, shall I drill or check row? The answer by the best authorities is that there is little difference in the yield, but that putting in hills about 3.6 apart each way allows better cultivation at least cost. In central Illinois soils, the best results have been obtained by planting from one to two inches deep and in central Ohio from two to three inches. Contrary to the usual plan among our farmers the experiment station's results show that four kernels to the hill produce a larger yield than three; three than two, and two than one.

It should be said, however, that they covered seed and cultivated it with the hoe, and took good care to thin out unnecessary stalks and pull off suckers. Our farmers who cultivate large fields insist that this does not pay and prefer two to three kernels to hills. I should be glad to hear discussion on this point.

After putting in the seed our farmer harrows his land again to help cover seed and pulverize the soil. As soon as it shows green all over he harrows it again, and soon the question arises, shall I cultivate deep or shallow? And how often? The most intelligent cultivators among us insist that the cultivation should be very shallow and mainly directed to stirring the surface and killing the weeds. They say never let the weeds get any lungs to breath through and in ordinary seasons cultivate too little rather than too much. The object in this is not to break the roots during the early life of the plant. The experiment station results fully bear out this theory as they show best results always from shallow cultivation. Indeed the simple scraping of the soil without breaking it shows better results than deep cultivation, and ordinary cultivation gave better results in yield than very frequent.

Do just enough hilling to keep corn clean in hill. Let horses spread out so that each horse may walk in center. If not and a 1200 pound horse steps on hills it will drive grain down an additional inch and make the corn come up uneven.

Our farmer having cultivated his corn as few times as he can lays it by and lets nature and a hot August night do her will.

If he has leisure and a will he can observe that in ordinary years about 11 per cent. of his stalks are barren of ears. That in unfavorable years, especially if his corn is too thick, this percentage may be 25 or even 40. These may be due to worms, poor seed, or injuries in planting or cultivation. He may groan in spirit at the ravages of the chinch-bug and study their habits and be in despair at the vagaries of the weather.

He will notice the plant is in full tassel, bloom and silk, about the last week in July. That the silks are about 12 days afterwards and that the stalk attains its extreme height the last week in July, and now he must begin to think about gathering his crop and how to do it. As usual he will find many ways of doing it. When the corn is sufficiently glazed and before the stalks wither, some cut off the tops above the ears and allow the stalks to remain until corn is fully ripened. Others cut close to the ground and pile in shocks, so many hills to shock. Others allow corn to stand and ripen on stalks and husk into wagons in late fall. The best practice is certainly to cut near ground and not above ear and for obvious reasons the sap being drawn from the earth, passing through the stem and entering the leaf, a change is there effected analogous to the change in the blood after entering the lungs, but the leaves are above the grain and it is while passing downward that the grain is fed. If you cut above the ear you stop this process entirely. Your corn will dry quicker but will not increase in quantity. All experiments carefully carried out have shown that there is a considerable gain by cutting near the ground. The best practice would seem to be to carry grain to crib and store stalks carefully under cover. Our farmers insist that in farming large areas this process is not a profitable one. I notice, however, that as the subject is better understood, that the tendency is toward a better care and utilization of the cob, husks, stalks and butts. This is shown by the increasing number of cutting and shredding machines as shown at the agricul-

tural fairs. They were formerly considered waste products in a certain degree. The cob especially was considered valueless, but chemical analysis shows that in 200 pounds of cob there are 70 pounds of digestible matter and 130 pounds of fibre. One thousand pounds of ground cob and grain therefore increase the quantity 20 per cent. and the nutritive element about 8 per cent. over the meal alone. The husk is now ranked next to grain in nutritive matter in proportion to weight, and later experiments show that the stalk butts contain more nourishment than the stalks. I have seen figures claiming that the weight of ears on an acre is 1,500 pounds, while other portions of the plant above ground contain 1,600. I presume this includes barren stalks. If these elements are fed on the farm after being properly prepared and the resulting manure is properly returned to the soil, I believe it would be profitable. The present objection is the trouble and the preliminary expense, but these are not valid objections if it prove profitable. I believe this subject should receive more thoughtful care and investigation than are given it.

The farmer having now determined to harvest his corn, should store it in flat work cribs not more than ten or twelve feet wide to avoid heating, and and if possible should place these on nearest roads to his market so as to avoid unnecessary hauling and handling.

If the production of Indian corn were wisely and intelligently handled, I believe the grand average would be at least five bushels greater per acre, not to speak of the great gain in the waste products. Anyone can judge what an addition this would make to our material resources, when they consider the great area used. I do not believe it to be an exaggeration to say that the gain would be at least 100,000,000 of dollars.

I have already taken up too much of your time, but must say a few words about the uses of corn.

The great bulk of the crop is undoubtedly used as food for cattle, horses and swine. Yet it is also true that the other uses of corn have largely increased during the last twenty years. I have endeavored to keep this essay out of statistics, but would like to give the relative amounts of corn used in the form of meal, spirits and glucose, but I have not been able to obtain them. I believe that the uses of corn, meal, hominy, samp, grits, sweet corn and all the various corn starch preparations would exceed in amount the spirit use, but I can not verify this assertion. The bushels of corn used in whisky and high wines are not probably over 50,000,000 and of glucose 25,000,000. Starch is one of the large industries that use Indian corn, and from it a very good imitation of tapioca and sago is made. Glucose is very largely used as an adulterant for maple syrup and strained honey. About 16 gallons of oil can be produced from 100 bushels of northern corn, but it is not manufactured in quantities. A large use is made of the cobs in tobacco pipes, and some wise farmers have derived much profit from raising a special variety of large cob corn for this purpose.

Paper is made from the husks, but not in large quantities. A cloth fibre has also been made from the husks, but I do not believe it is a commercial success.

The great hope of the future for corn is its extension as a food product for man. Those of us, especially those of southern birth, who are familiar with the glories of corn bread, hominy, dodgers, pone, Johnny cake, and mush and all the other toothsome substantial and delicacies, wonder why all the world does not partake. Corn meal contains almost as much gluten as wheat and more fat making material by far. It is much better adapted to the needs of winter in a temperate climate than any other single vegetable food. And when we consider that it is only half as expensive as wheat flour, it is astonishing that it is not more extensively used in our own country. The great trouble in the past not only in foreign countries, but in our own, is ignorance of the proper way of cooking it. When several ship loads of corn were sent to Ireland, the only way they were used were to boil the ears whole and parch the corn. Is it not surprising that they said it was fit only for swine.

In 1890 the U. S. Agricultural department sent Col. Murphy to Europe to give information on the qualities and use of corn. He spent two years in the propaganda. He distributed pamphlets, interviewed bakers, gave dinners to

prominent merchants and officials at which all the best corn dishes were served, not forgetting the liquid extracts. One of the greatest difficulties he encountered was that the people do not bake their own bread, but buy once or twice a week from the bakers. This practice is not adapted to corn meal preparations, because they do not keep well. Col. Murphy found that he could not change the habits of a life time, and unless he could induce the bakers to take the matter up, he would fail. Another difficulty was that the ocean carriage of corn was liable to sour it and make it musty.

Fortunately the great Russian rye shortage came about that time and on account of the high price of rye he was able to induce the German bakers to make bread half corn and half rye. This sort of bread was found to keep better. Then the German army took it up and great advancement was made in the introduction of corn as food, and a considerable addition was noticed in our exports for the following year. Of course every good has some evil consequence, and the increased use of corn meal stimulated competition from Austrian Hungarian corn fields. A late analysis, however, of their corn shows it does not as yet compare with our own in the essential qualities and there is a well founded hope that we can sell greater quantities of our chief agricultural product. I have not time to discuss the subject any further and will only say that during the winter time our own people should eat more of Indian corn. Foreign missions are all right, but the home missionary board should be organized. I have collected a large number of receipts for the various food uses of corn, clear through the bill of fare from soups to puddings, and pies and as they are not of my preparation, I can safely advise you all to try them. Here they are. Thanking you very much for your consideration, which I am well aware I have strained to the uttermost, I will close.

I sing the song of the rootlets
At the birth of the giant corn;
Who gather their might
Far away from the light;
Who with infinite toil
Push their way through the soil,
And laugh, when the stalk is born.

I sing the song of the treelet
That smiles at the prairie it greens:
That nods with delight
Through the hot summer night;
With the patience of God,
Springs fast from the sod,
And welcomes its leafy screens.

I sing the song of the leaflet,
With its sadly whispering noise;
That shelters the gold,
Of its wealth untold;
That builds up the marts,
And makes glad hearts
Of the nation of Illinois.

INDIAN CORN AND ITS USES.

By Mr. Louis H. Hyde, Joliet, Ill.—Read before the Will County Farmers' Institute.

America has no more truly representative product than Indian corn, or maize, as it was called in Europe. Not only is it now cultivated in nearly all parts of North and South America, forming the principal crop of the United States, but it was cultivated by the native tribes of both the Americas for centuries before the first voyage of Columbus. When the Spaniards first landed on this continent in the fifteenth century, they found here a new race of people whose principal food crop was a golden colored cereal, unknown to the old world, and called by the natives, maize. The name is supposed to have had its origin with the Maya Indians, of Yucatan.

From the shores of the great lakes of North America to the savannas of Paraguay in the southern part of South America and from ocean to ocean, except near the equator, maize was cultivated by the different tribes of Indians in the patches near their villages. Among the six nations of the Iroquois in their paradise of lakes, on the rocky hillsides of bleak New England, in the rich low lands along the "Father of Waters," on the dry and endless plains of the Arkansas and the Platte, in the beautiful valley of Mexico in the midst of Aztec splendor, in the irrigated valleys of the Incas, high up amongst the magnificent snow-clad peaks of the Andes and on the treeless plains of South America, it was cultivated by the Indians very much as it is cultivated to day by their successors, except that with the Indians, woman was the husbandman.

It is a strange fact, which no doubt you have often observed, that among all savage races, among all birds, most insects and many animals, the female is attired in plain sober costume and does the heavy work, while the male is decked out in gaudy plumage and does the heavy standing around. It has been reserved for civilization to change this order of things, for Anglo-Saxon civilization especially. Whenever you see a man putting in his weary hours loafing, while his wife or mother works over time to support him, you can set it down as a fact that the ancestral tendency in him is from too far back, he is not a civilized man but a later day savage.

Indian corn is the result of development by cultivation of the seeds of a species of grass. It is supposed to have come originally from Paraguay and is now known only in a state of cultivation. It requires a strong imagination to comprehend the number of centuries maize must have been cultivated by the native tribes of America to develop it from a grass to the state of perfection existing at the time of the discovery of this country, especially when we remember that all trace of the original grass has been lost. This is held by anthropologists to be a very strong argument for the great age of man on this continent.

All the Indian tribes had myths concerning the origin of the maize, and many of them celebrated its season with religious ceremonies and festivals. One of these Indian myths, that of the gift of the maize, is beautifully told by Longfellow in his "Song of Hiawatha." He tells how Hiawatha "prayed and fasted in the forest," "seven whole days and nights," "for advantage of the nations;" how he lamented the fact that the lives of his people must depend on the results of the chase, on fishing and on the wild fruits of the fields and the forest; how on the fourth day he saw "a youth approaching dressed in garments green and yellow, who in accents like the sighing of the south wind in the tree tops, said:

"O! My Hiawatha!
All your prayers are heard in heaven,
For you pray not like the others,
Not for greater skill in hunting,
Not for greater craft in fishing,
Not for triumph in the battle,
Nor renown among the warriors,
But for profit of the people,
For advantage of the nations.
From the Master of Life descending,
I, the friend of man, Mondamin,
Come to warn you and instruct you,
How by struggle and by labor
You shall gain what you have prayed for."

Then Hiawatha, in obedience to his instructions, wrestled with Mondamin on four successive days and finally overcame him.

"And victorious Hiawatha
Made the grave as he commanded,
Stripped the garments from Mondamin,
Stripped his tattered plumage from him,
Laid him in the earth, and made it
Soft and loose and light above him.
Nor forgotten nor neglected
Was the grave where lay Mondamin."
*Day by day did Hiawatha
*Go to wait and watch beside it,
Kept the dark mould soft above it,
Kept it clean from weeds and insects,
Drove away with scoffs and shontings,
Kahgahgee the king of ravens,
Till at length a small green feather
From the earth shot slowly upwards,
Then another and another,
And before the summer ended
Stood the maize in all its beauty,
With its shining robes about it,
And its long soft yellow tresses:
And still later when the Autumn
Changed the long green leaves to yellow
And the soft and juicy kernels
Grew like wampum hard and yellow,
Then the ripened ears he gathered,
Stripped the withered husks from off them,
As he once had stripped the wrestler,
Gave the first Feast of Mondamin,
And made known unto the people
The new gift of the Great Spirit."

Indian corn is by far the most important cereal raised in the United States, it being the staple crop of a great majority of the states. In the number of bushels raised each year and in value, it far exceeds any other crop. The value of our corn crop for 1895 exceeds the united values of the wheat, oats, rye, barley and buckwheat crops of that year. Indian corn has been introduced into Southern Europe, India and Australia. More than three hundred varieties are known which differ more among themselves than those of any other cereal. Some varieties grow to a great height, while others are very short; some mature in two or three months, others in seven. The kernels of different varieties vary much in size, some being many times larger than others, in color some are yellow, some white, or red or striped, etc. The ears vary considerable in shape and size; and the chemical composition differs also.

It can be grown in the tropics from the level of the sea to a considerable height on the mountains and as far north or south of the equator as the frost line will permit. Frost kills it in all its stages and all its varieties. It is the first crop to disappear as we ascend into the mountain regions. Comparatively little is grown west of the great plains of North America, and none is raised in England except for fodder.

The region of its greatest production is in the valley of the Mississippi. According to the census report of 1890, the area of the heaviest production of Indian corn per acre of improved land, lies between the western part of Indiana and a line drawn north and south just west of the center of Kansas and Nebraska, taking in the states of Iowa, Illinois, Missouri, Kansas, Nebraska and Indiana. In that year, 1890, Illinois had the largest area, 7,263,025 acres devoted to Indian corn, and Nevada the smallest area, 274 acres. Twenty-nine states had a larger acreage under corn than any other cereal, and they are found in every part of the country except on the Pacific slope. In some of the southern states corn is almost the only cereal raised.

From 1870 to 1879 the average crop of corn was 1,185,000,000 bushels in round numbers. From 1880 to 1889 it was 1,704,000,000 and from 1890 to 1896 it was 1,788,000,000 bushels, a gradual increase in the average yearly crop for each decade. The smallest crop during this period was 1,195,000,000 bushels in 1881. The crop of 1894 was but little larger, being 1,213,000,000 bushels, while the crops of the last two years are the largest on record, that of 1895 being 2,151,000,000 bushels, and that of 1896 being estimated at 2,284,000,000 bushels. Previous to 1895 no crop reached the two billion mark except that of 1889, which was 2,113,000,000 bushels.

In 1895 Iowa led with 299,000,000 bushels, with Illinois a close second with 255,000,000 bushels. The states of Iowa, Illinois, Missouri, Kansas and Nebraska together raised more than half the entire crop. The crop of Illinois for 1896 is 284,573,000 bushels.

In looking over the statistics, we find that the corn crop is very much the most important cereal crop of the United States, both in the number of bushels raised and in its value represented in dollars and cents; that its cultivation is adapted to a larger part of our area than that of any other cereal, and that it forms the principal cereal crop in a large majority of states. We know it is the safest and cheapest cereal to keep on the farm for a number of years to await a favorable market, as when cribbed it will keep a long time without care or attention. We notice also that since 1870 the average crop has been steadily increasing, while the average price has been declining, although during this same period the population of the United States has been steadily increasing, especially in the larger towns and cities where corn is used but not raised. This apparent contradiction is partly accounted for by the great falling off in the demand for horses during the past fifteen years, due to the extraordinary development of electric transportation and the bicycle; and also to the fact that in the northern states, where the increase of population has taken place, the people do not use corn for food as extensively as formerly.

Now, as Indian corn is our most important cereal crop, and as the value of a crop depends on the uses it is put to and the relative supply and demand, we must look here for an explanation, in part at least, of the present ruin-

ously low prices. In 1894 we had a very small crop of corn, and not only a large wheat crop but a large reserve from the large wheat crops of the two preceding years. Here in Joliet, we paid as high as fifty cents per bushel for corn of that crop when we were paying only forty-five cents per bushel for wheat. The corn crop of 1895 and 1896 were the largest on record while the wheat crops of these two years were very small, especially of winter wheat. Some of the best posted men in the grain business place the amount of corn still in this country at over three billion bushels. At the time this was written, corn was selling in Chicago at 20 cents per bushel, spring wheat at 83 cents and red winter wheat at 88 cents per bushel. There is still considerable corn in the cribs that might be sold at fifty cents a bushel had the owners been willing to set aside speculative yearnings and accept a good price for their corn. I do not look for much of an advance in the price of corn until one or more short crops, or an increased consumption caused by a renewal of prosperous times cuts down our large surplus and changes our position with reference to supply and demand.

Where does the demand for our corn come from? Necessarily from at home and from abroad. We turn to the government statistics and find that from 1880 to 1889 the average yearly exportation of corn was 58,500,000 bushels or 3.37 per cent. of an average crop; while from 1890 to 1895 the average yearly exportation was 3.06 per cent. of an average crop. The largest amount exported for any one year from 1880 to 1896 was 104,000,000 bushels in 1889 and the smallest was 28,000,000 bushels in 1895. Our exports for 1896 were 100,000,000 bushels. These figures are for the crop year ending June 30th. For six months from June 30, 1896 to December 31st, we have exported 72,241,000 bushels, an unprecedented amount. This does not include the corn exported in the form of manufactured products. The United States exports corn to Great Britain, Germany, Canada, France, Denmark, Belgium, The Netherlands, Sweden, Norway, Italy and Portugal, also to Mexico, Guatemala, Venezuela, Cuba and the West Indies. None whatever is exported to India, China, Japan, Australia or Africa.

By far the largest part of the corn exported goes to Great Britain. From 1848 to 1894 the smallest amount sent there was 40,900 bushels in 1870, while the largest amount was 66,000,000 bushels in 1878. No one of the other nations import very large quantities of our corn; and small as is the amount of Indian corn imported by the various European nations, we do not supply all of it. Although we raise crops of corn so large that the crops of any other countries appear insignificant compared with them, still other countries raise enough to have a surplus for export, and sell an astonishingly larger percentage of it in Europe than we do.

The principal countries that export corn in competition with us are, in the order of their present importance, the countries of Southern Europe along the Danube river, the Argentine Republic and India.

In 1895, Argentine raised 48,000,000 bushels, Austria-Hungary 136,000,000, Bulgaria 8,000,000, Canada 20,000,000, Italy 68,400,000, Roumania 64,000,000 and fifty governments in Russia 20,800,000 bushels. Of these competitors, none need be very much feared except Argentine and Russia, as most of them have no new land to turn to. But Argentine may prove a serious competitor in the future as an enormous tract of wild land in that country and in Brazil is especially adapted to the cultivation of maize, both as to soil and climate. This area is nearly as large as the corn area of the United States and is traversed for hundreds of miles by navigable rivers. The tide of emigration is now setting strongly towards the La Plata regions and we may look for a further increase of the cultivated area and increased exports of maize.

You will see by this that the foreign market for this, our largest and most distinctive crop does not present a very pleasing picture for our contemplation. Certainly one hundred million bushels exported on a crop of 2,115,000,000 bushels is not a very comforting morsel for us at this time when our cribs are bursting with a reserve of at least three billion bushels. This forces us to a realization of the fact that until a larger foreign demand is worked up, ninety-six per cent. of our corn crop must be consumed at home, and that the price paid for it will depend largely on domestic conditions.

But how is Indian corn used in this country?

1. The largest part is used as food for cattle, horses and poultry, and is fed as whole grain or as ground feed, either by itself or mixed with other grain, according to the ideas and circumstances of the feeder.

2. It is used as the raw material for the manufacture of alcohol, beer, whiskey, starch, glucose and oil.

3. It is used in part as human food.

One process of making starch from corn is to steep the corn in a weak solution of caustic soda until it swells and softens. It is then ground to a pulp and mixed with water to a stiff dough. After resting an hour or two, it is washed over a fine sieve so long as the water passing off continues milky. In this way the starch is liberated. The residue is dried and sold as a cheap feed. The starch is allowed to settle in vats and is drawn off, purified and dried. (By another process, starch is obtained from corn by first coarsely grinding it and then moistening the meal with water. This is then allowed to stand and after three or four days, fermentation sets in, more water is then added and the putrefaction allowed to proceed for some three or four weeks. By the end of this time the gluten and nitrogenous matters are dissolved. They are then readily separated from starch by washing, after which the starch is dried.)

Glucose is usually made from the starch of Indian corn by the action of heating with diluted sulphuric or oxalic acid.

In distilling, and some of the other processes, the oil of the maize is separated and forms an article of commerce, but its use is very limited. Maize contains more oil than any other cereal, ranging from 3.05 to 9.05 per cent. This is one of the factors of its value for fattening purposes.

Within the last ten years, a new and rapidly growing market has sprung up for one of the products of white corn, called brewers' gritz, which is being extensively used in the manufacture of beer. There is one mill in Chicago grinding 6,000 bushels of white corn per day making brewers' gritz, and others are in operation in Milwaukee and many other parts of this country. These mills first remove the germ and bran of the corn by machinery. The hard part of the kernel is then reduced to a coarse meal like samp, thoroughly dried and sold to brewers. The oil must be as completely removed as possible. Yellow corn is not used for this purpose as it contains too high a percentage of the oil. Some mills make hominy of white corn, roll it into broad flat flakes, called cerealine, which are used here as a breakfast dish and also exported to Germany to be used in the manufacture of the strictly hops beer they boast of over there.

A white corn flour is also made extensively in this country, which in fineness and color is very similar to wheat flour. It is used for pancake flours and for blending with wheat flours. When properly made the corn flavor is so thoroughly removed that its presence in wheat flour is very difficult of detection, except with the microscope. The starch grains of corn are so different in appearance from those of wheat that when placed under the microscope, their detection is very easy. To-day it is supposed that white corn flour is being extensively used as an adulterant of wheat flour because of its much lower cost. Whether this is a fact or not, the mills that manufacture white corn flour are behind their orders, and their product is not going into pancake flours, as there never was a season since pancake flours came into the market when the consumption of them was as small as during the present season.

When some brands of wheat flour are sold in the market at prices so low that loss must result to the seller, if the market price of wheat, cost of milling, freight, etc., are considered, we must infer that the sellers are either voluntarily losing money, or stealing the wheat, or adulterating the flour with some cheaper article. You must form your own conclusions.

Corn is used quite extensively in this country as human food, in the shape of hominy, samp, gritz, cerealine, corn flour, granulated and bolted meals. Its use is much more extensive in the southern than in the northern states. In the south, white corn only is used on the table, and it is more of a food

staple than is wheat. White corn is richer in the nitrates, contains less starch and oil than yellow corn, and in a warm country is better adapted for human food.

In the northern states the use of corn as human food is not very extensive and relatively not nearly as extensive as during the early days of the country. This is to be regretted as corn is a wholesome cereal, containing considerable fat and proteid as well as starch and furnishes abundant energy producing heat.

It is very fattening for both the lower animals and man and is an ideal food for the latter during the winter of this northern country.

In the early days of this country when the people lived a plain, frugal life of hard vigorous work, ignorant of the many material luxuries of the present day, when they were better neighbors, and valued each other according to their plain, genuine merits, they used corn extensively as food, and were freer from sickness than at present. At that time a man who had accumulated \$10,000 was considered rich, while thirty dollars a month was a comfortable salary. The civil war broke out, changed large bodies of men from the ranks of producers to consumers, and destroyed billions of dollars worth of property. This created an enormous demand that was felt by the entire country as soon as progress resumed her sway at the close of the war. During the succeeding period thousands of citizens made comparatively enormous fortunes, many more made moderate fortunes and all made comfortable livings until that destruction of material things was made good.

During this change from small expectations to large realizations, the habits of the people changed from a simple to an extravagant style of living; and in this change, the use of corn as human food has suffered. To-day, the price of a barrel of patent flour will buy nearly four barrels of corn meal, not meal unevenly ground and mixed with dirt, corn bran, etc., but meal as carefully milled as is wheat flour and thoroughly dried to prevent its becoming rancid. Each barrel of it contains as much nutriment as a barrel of patent flour, yet the man who is out of work and having a hard time to get along, will not use it, because he looks upon it as cow feed. Even many of the people who are so unfortunate as to depend on the town for aid, refuse to use it; yet in the old days people were healthier in their plain living than they are now with their excess of highly refined white flour and sugar. Now, you farmers complain of the low price. The present price is due very much to the very large supply of corn known to be in this country. You do not want to decrease the crop, but to increase the consumption of the corn. Why not commence at home, and use more of it on your own tables, and use all the means in your power to induce your friends who live in the city or town to do likewise? More people engage in farming than in any other one pursuit, and if the farmer, like charity, would begin at home, he would accomplish considerable in creating a larger demand.

The use of corn as food for animals, as a raw material for starch, glucose, whiskey, beer, etc., will always depend on the times in this country. When the times are good and people are prosperous, they will be more prodigal in the use of these articles than when the reverse is true, and nothing can be done to prevent it. But there are two markets for corn that can be increased as the result of persistent effort along the right direction. One is the use of corn as a food on our tables in this country, and the other is the export of corn to other countries.

The farmers and all citizen interested in the prosperity of the country should interest themselves in season and out, in the question of cheap transportation from the corn regions of the interior to the seacoast. This can best be accomplished by water transportation. We should use all honorable influence with our members of Congress to make a certainty of the scheme of transportation of grain from Chicago or Duluth to London, without breaking bulk, and to the construction of a ship or barge canal from the Mississippi to Chicago, and the improvement of the navigation of the Mississippi and Missouri rivers. You will note the importance of such transportation, when you realize what is meant by the record of the lakes. In 1893 for instance twice as much grain went forward from Chicago by lake as by all rail, and this excess by lake has been steadily increasing. If this grain could be

loaded at Chicago for London and avoid the heavy terminal charges at Buffalo and New York City, the difference would be much greater. The farmers and shippers of grain would no longer have to pay transportation charges based on watered railroad stock, and high priced general officers and directors of several railroad systems. This country would then be in position to compete with any country, for the foreign market, without making the price too low at the farm. This water transportation is very necessary, as our competitors are countries whose grain fields have cheap and quick access to the ocean.

They are principally the Argentine Republic, in which the La Plata and Parana rivers, as navigable streams, penetrate four hundreds of miles into one of the richest and most extensive corn regions in the world; India with her extensive sea coast and long navigable rivers; and the countries of Southern Europe bordering on the Black sea, or tributary to it by way of the Danube river.

I believe the great majority of people in this western country would be glad to pay a tariff tax if, tax it is, and pile up a surplus in the United States treasury, if that surplus could be used in a national system of cheap water and land transportation to the seaboard.

A reciprocity treaty with Mexico and Canada, our neighbors on the south and north, would give us a large market for our corn. Those most conversant with the matter know that a reciprocity clause with Canada would lead to an enormous consumption of corn in that country for stock feeding and other purposes. They do not raise much corn there but need it and are only restrained from using it in large quantities by its cost.

This would be a good year to send corn to India, when during the famine it would meet a ready market because of its low price. The grain should not be shipped, but the manufactured product which has been prepared to stand transportation to a hot climate.

In Japan and China are millions of people who eke out a scanty living on starchy food, principally rice. Corn is essentially a starchy food and prepared as we now prepare it, should find an inexhaustible market there. These people are conservative and it will take years to introduce such an article of food among them, yet the United States should commence now to work that promising territory. Germany, France, Holland, Norway and Sweden and other countries should be systematically canvassed in this work. The people of these countries use plain, coarse food, and could be in time induced to use corn as one of their food products, especially if it is low in price as compared with wheat and rye. The corn products, prepared in the proper way, should be exported, rather than the grain, as the people of these countries do not know how to properly mill the grain; and corn products are better prepared to stand changes of climate, and right here, let me call attention to the fact that a reciprocity clause, should aim to prevent the discrimination against the American manufactured product in favor of the raw material. In the case of corn, more would be used as a food if rightly manufactured, than if it is poorly milled.

For instance, Switzerland admits our corn with a tariff of 1½c per bushel but places a tariff of 42c per barrel on meal; about 9c per bushel. Italy discriminates nearly as much. Portugal put a tariff of 49c per bushel on corn and \$2.11 per barrel on meal.

France 14.71c on corn, 85.79c on meal.

Russia free on corn, 83c on meal.

Spain 21½c on corn, 122.68c on meal.

Germany 5.16c on corn, 222.17c on meal.

Austria 5.16c on corn, 135.36c on meal.

England, Belgium, The Netherlands and Denmark, admit corn and its products free.

In England the use of corn as human food is very limited, but can be extended as a result of persistent work in that direction, as is shown by the reports of some of the United States consuls.

I am satisfied also that a larger use of corn could be worked up in England, Germany and other European countries by persistent effort on the part of American manufacturers and the United States government. The day has gone by when a government, any more than a merchant, can sit back and have customers come and beg for goods. There was a time, years ago, when the merchant sat in his shop and the manufacturer in his office and the customers came to them. Now such a man would die of starvation. Not only must business men use every means to secure customers, but the railroads, those former kings, find it necessary to pay large salaries to bright men to run over their territory and solicit business.

Governments also find this necessary. No nation in the world resorts so much to the use of traveling men, so to speak, or spends so much to increase and protect the trade of its merchants as does Great Britain; and no nation has prospered so much as she. She has been awake to the needs of the age, while other nations have been sleeping. The United States must work along this line; establish deep water transportation from the interior to the seaboard; establish steamship lines to South America, Africa and Asia, and assist our merchants and manufacturers in extending trade into these far away lands.

POSTAL SAVINGS BANKS.

By J. C. Francis, New Lenox.—Read before Farmers Institute of Will County, Feb. 13, 1897.

MR. CHAIRMAN, LADIES AND GENTLEMEN:—Is it desirable for the United States government to adopt Postal Savings Banks? The establishment of Postal Savings Banks was practically suggested in the year 1860 (only thirty-seven years ago) by Charles William Sykes, whose suggestion was cordially received by Mr. Gladstone, the Chancellor of the Exchequer of England, to whose conspicuous exertions in parliament the effectual working out of the measure and also many and great improvements in its details are substantially and unquestionably due. Mr. Gladstone's bill, entitled "An act to grant additional facilities for depositing small savings at interest with the security of the government for the due repayment thereof," received the royal assent on the 17th of May, 1861 and was brought into operation the 16th of September following.

A government report dated October 1, 1896, places the number of post-offices through which the people may do savings bank business at 12,000. The postmasters act as agents and through them the depositors may deposit money, invest in consols (bonds), insure their lives or buy annuities from the government. The postoffice banks are so admirably managed that the savings banks under private management do not attempt to compete with them. No new savings banks have been established since the government began to receive deposits, and many of those formerly in existence have gone out of business. Savings bank business may be transacted at the postoffice from 8 o'clock in the morning until 8 o'clock at night every day in the week. The law allows one person to have only a single account and the government insists that it shall have a monopoly of the savings bank business of any depositor, requiring the would-be depositor, before opening an account, to make affidavit that he has no account with any other savings bank. Separate accounts may, however, be kept by husband and wife or by different members of the family. No smaller deposit than 25 cents will be received by the government, but in order to encourage thrift among children and the very poor people, blanks are furnished containing spaces for twelve penny stamps. The depositor may buy penny stamps as he obtains money, affix them to the blank until he has twelve of the stamps on his blank when he may open an account or deposit it with his account receiving credit for 25 cents. Until two years ago only \$150 could be deposited within a single year, but this limitation was removed on the ground that it was disadvantageous to the workingmen who were not allowed to save in season of great prosperity against time and want, so the limit was advanced on the recommendation of the Postmaster General to \$200. More than \$200 can be deposited but without interest, and when a depositor's account reaches \$1000 no further deposits will be received from him. Interest is allowed at the rate of 2½ per cent. per

year. When a depositor wishes to increase his savings above \$1,000 he can do it by buying consols. These consols are a governmental security of Great Britain. In 1751 a large part of the public debt, nine separate loans being in the form of annuities, were consolidated in a 3 per cent. bond or stock; the name of consols was given them as an abbreviation of the word consolidated. In 1888 the 3 per cent. were converted into $2\frac{3}{4}$ per cent., which rate in 1903 is to be reduced to $2\frac{1}{2}$ per cent. The stocks now constitute more than one-half of the debt of Great Britain and their price is regarded as a gauge of national credit. They were quoted at 112 on December 7, 1896. A person may, through the postoffice, invest any amount from 25 cents upward in these consols or bonds at the current market price; but not more than \$1,000 in consols can be bought during one year through the postoffice, and not more than \$2,500 can be obtained through the postoffice by one individual. This allows a person to hold \$2,500 in consols and have \$1,000 on deposit at a post-office savings bank. These provisions have, in the opinion of the English government, been very successful. By their means thousands of working people are now holders of consols who if it were not for the cheap and easy facilities placed within their reach would not have bought them. Working people left to themselves would be apt to fight shy of stock brokers and not buy them, but when allowed to buy them direct from the government they are quick to take advantage of the opportunity. Another important point is that it prevents the hoarding of money as would be the custom by many who have a prejudice against savings banks. Even these people have the most absolute confidence in the government and the temptation to hoard is discouraged. Very little money is hoarded in Great Britain except by misers. Since the establishment of the Postal Savings Banks in England several of its colonies have taken up the scheme with marked success, viz., Scotland, Ireland, Wales, Canada and New South Wales, besides the countries of France, Belgium and Italy. The United States has been slow to act along these lines. Postmaster General Creswell during Grant's first administration took occasion to recommend the establishment of Postal Savings Banks, and this subject he made of peculiar interest at the time by the suggestion that the money needed to purchase existing telegraph lines could be raised through the Postal Savings Banks. A not altogether unworthy object which has never been adopted and still continues to be advanced by some of our leading thinkers. Since 1871 the establishment of Postal Savings Banks has also been the subject of frequent departmental and congressional discussion. The utility and expediency of the measure have not been doubted, but singularly enough what has seemed to be an insuperable obstacle to the inauguration of the system has been encountered. The policy of the government has been to gradually reduce the national debt. However worthy this policy may appear, yet the facts in the case disprove any such theory, for since 1789, when Washington was inaugurated we have been laboring continually under a national debt, and today we stand as a nation more in debt than we did ten years ago. As the national debt furnishes the foundation to our present system of banking so also it would form a foundation for a Postal Savings Bank system. Interest can not be paid to depositors for funds which are not needed and which can not be profitably employed. A bill to establish a postal savings depository as a branch of the postoffice department was introduced in the House of Representatives on February 8, 1882 and an elaborate report was made thereon February 21, 1882 by the Committee on Postoffice and Post Roads to whom the bill had been referred. The measure was never acted upon and has not since been revived. So much for the history of its workings. Now the question is, would it be a good thing for the United States government to adopt it? England has tried it and it works satisfactorily, several other countries have also and they like it. This in itself is not sufficient reason for its adoption by the United States. Nevertheless the conditions which made it possible for these other countries to adopt this system with success exist with us today. A national debt and a great middle class. This is primarily the bank of the common people. The wage-earner of the city and the farmer and those who labor on the farm. This is the class that needs to be taken care of. The rich are able to take care of themselves and the poor must be taken care of by others.

Any institution to do a considerable business with them must be conveniently located and it must be safe. These two qualifications stand out prominently in the Postal Savings Bank System. Every money order postoffice would be a bank wherein money could be deposited at any time and from which money could be drawn upon short notice. Imagine, if you please, savings banks scattered all over Will county, one or two or more in every town. The very fact that it would be easy to deposit is argument in itself that they would deposit. There is another and more important reason. Their money would be safe, and that means a great deal just at present. Washington Hering, postmaster of Chicago, says that one of the strongest arguments in favor of postal savings banks, in his mind, is that people came to his postoffice during the recent hard times and purchased postoffice money orders, payable to themselves, losing the use of their money and paying the cost of the order extra, simply to be sure their money would be safe when they wanted to use it. Most people used to loan what spare money they had to friends or else deposit it in some bank or trust and loan association. These are all right on general principles, yet all have to bear the burden of distrust because some fail. The trouble is you don't know which one is going to fail next. A great many people have accordingly withdrawn their money from these institutions and a great many others are sorry that they didn't a good while ago. But even these people are as well off as the man Chicago papers tell about who put \$650 in his cellar because he was afraid of the banks, and one day thieves got into the house and now the \$650 are gone.

It is sufficient in this discussion to know that it is taken out of the ordinary channels of trade. A great many people have an idea that by depositing money in a bank it is being hoarded. This is a great mistake. The contrary is, in fact, the truth. If you put your money in the bank, you are working it into the channels of trade, rather than taking it out. It is self-evident from this that the Postal Savings Bank System is one way by which some of this money that is lying idle now might be worked back into its proper place to perform its natural functions, and not only now but for years to come, it would discourage hoarding and encourage thrift. To illustrate:

The government is going to build a postoffice in Chicago to cost millions of dollars; several thousand men will be employed at some time or other in its construction; these men must be fed; they need flour, they need meat, they need potatoes, they need butter and food of all sorts—this helps the farmer. They also need coal—this helps the miner. They must be clothed—this helps the manufacturer and the merchant, and we might go on and enumerate article after article, and individual after individual, all of whom will get a part, at least, of this great mass of money.

It is impossible to estimate how much money would be deposited in these postal banks if they were adopted. There is in round numbers \$1,907,000,000 deposited in the Trustee Savings Banks of the United States to-day. In Great Britain the Postal Savings Banks passed the Trustee Savings Banks before they were in operation twenty years. If the people of the United States should think as favorably of the system as do our British cousins—and there is every reason to believe that they would before that length of time—there would be as much deposited in the postal savings banks as in the others. That is to say, that one-third of the \$1,907,000,000 now deposited in the trustee banks would be transferred to the postal banks, and enough additional money that had never been deposited would be, to make the sum equal to the sum in the trustee banks, a net gain to the new depositors of \$19,000,000 per year, being the interest on \$635,000,000 at 3 per cent. These would be the figures for a time—twenty years in the future—until then it would not average so much, and after that time it would average more. These figures are based upon the law of average of Great Britain since 1861.

Another point in favor of this system is that the government could fund its national debt at a much lower rate of interest, and every one who is a depositor would become part and parcel of the government.

The points in favor of postal savings banks may be briefly summed up as follows: 1st—On account of its many branches so widely distributed, it encourages a great many more people to lay aside their surplus earnings for a

rainy day. 2d—The money of the depositor would be absolutely safe and the interest certain. 3d—It prevents hoarding. 4th—It causes money to circulate more freely. 5th—The interest on the national debt could be paid for less money and it would be in the hands of the common people instead of the rich bondholder. 6th—The time for great national improvements is not far distant, and this question forms a most admirable means by which they may be done.

The great mass of idle men must be set to work. And now, lastly, let me say that I for one hope to see the day, and that right early, when something can be done to prevent men from defrauding their fellows of money which it has taken many days of ceaseless toil and self-denial to accumulate, and to whose manhood and integrity they have intrusted it, only to have their money gone and their hopes shattered and destroyed. May the object lessons you have seen before the doors of broken banks sink deep into your minds, and although the cursings of the men and the sobbings of the women no longer reach your ears, may you still keep in mind those things which make this possible, and while you search for a remedy, may I ask that you give due consideration to the postal savings bank.

CHEAPEST MILK PRODUCTION.

By A. G. Judd, Dixon, Ill. Read at the Winnebago County Farmers' Institute.

MR. CHAIRMAN, LADIES AND GENTLEMEN:—Doubtless you realize by this time that the best results received from these annual meetings come from the freedom with which you ask questions and determine how far you can apply the principles promulgated by the speaker to your own individual business.



A. G. JUDD.

It also must be remembered constantly that methods adapted to a black loam soil will not produce similar results on a heavy clay soil; neither will the methods that I shall state, as applied by me with my surroundings, produce similar results for you, if your surroundings are radically different.

If my talk is to be of practical benefit to you, do not expect highest results from moderate conditions, but be willing to improve conditions until highest results are reached.

We have not time to go back and follow the history of the cow down to the present day, or the characteristics of the different breeds. The dairy cow as a cow bred, fed and handled for the single purpose of producing milk, the quantity and quality of said milk determining the value of the cow and the amount of profit her owner shall receive.

As the quality is determined by inheritance, it remains for the owner to apply his skill in developing the quantity and preserving the quality.

By that I mean if a cow is born with the ability to produce 5 or 6 per cent. milk, no foods or system of feeding can materially increase that per cent. of butter fat. But it is very easy to feed so as to reduce that per cent. of fat; hence, the necessity of the dairyman's learning at the outset that nothing but a well-balanced food ration and careful handling under favorable conditions

will enable any dairy cow to do her best. Now let us for a moment study the outlines of a dairy cow. She should possess a long, thin head, large nostrils for plenty of air, great breadth between the eyes, high forehead, a bright, clear eye, sound teeth, thin neck. deep through the chest with large lung capacity, long and large back bone for plenty of nerve force, broad hips, high pelvic arch, thin thighs well apart, giving plenty of room for a good udder. She should be deep through the flanks, with plenty of store room for food, the udder should be well developed, running well up behind and well forward on the body, with large milk veins, teats set evenly on the four quarters and of good size. A cow with these points well developed indicates that she is descended from a line of dairy cows and will rarely prove a failure if properly handled from birth up.

I find we can improve the ordinary cow of the present day which has been bred chiefly to producing short horn beef, by using a thoroughbred Holstein sire. No other breed seems to possess the ability so strongly to transmit the dairy form and the capacity to produce a large quantity of milk.

The offspring retains a good quality of milk, is easy to keep in good flesh, is of large size and comes wonderfully near making a good general purpose cow that can distance the special purpose cow of many thoroughbred herds, no matter for what product you use the milk. Thus the young man can buy a few cows from those around him, secure a good sire and in a few years build up a valuable herd.

Having secured a herd by careful selection and systematic breeding, we will proceed to the ways and means of maintaining it. We must raise our best heifer calves. I think the first six months' or year's care of the calf determines largely the future usefulness of the cow. Here we can develop the tendency to take on fat and ruin the milking qualities.

It is a very easy and cheap matter to raise calves if you know how. Here is my way: Remove the calf from the mother when it is from one to three days old, according to the disposition of the cow. I prefer to remove the first day if it is the first calf. to prevent, if possible, the inclination of the mother to hold up her milk which is liable to induce a bad habit.

When the calf is removed feed it for three or four days with the mother's milk, twice a day; then drop out a pint of milk. add a pint of warm water and a teaspoonful of oil cake meal. In a couple of days drop out another pint of milk, add another pint of warm water and a handful of low grade flour (costing \$1.00 for 140 pounds) and so on, reducing the milk every two days, until at ten or twelve days you have taken away all the new milk and substituted oil cake meal one tablespoonful, warm water four quarts and flour two handfuls. Put whole oats and corn and hay where it can get them when first removed from the mother. Do not take away all the new milk until it is eating freely of the grain. Put boiling water on the oil meal and flour, temper with cold water or skim milk. Try to have the heifer fresh as near two years old as possible, and do not allow her at any time to take on fat. A hearty growing condition is what we want, and any time you see her plumping up and rounding out shut off feed somewhere. Angles are what we want, and while it will not make a picture the most beautiful to look at, the credit side of her milk account will grow amazingly later on, and you will have developed a cow that dairymen will want and will pay a good price for.

Do not discard a young cow if she does not meet your expectations the first year, but give her another trial. Frequently she will double the amount of milk the second season. But if the second season is not satisfactory sell her to the butcher.

Having told you how to breed a dairy cow cheaply and how to raise a calf without a dollar's worth of milk, I will now tell you the ordinary way of feeding cows, its cost and how to reduce not only the cost of the feed nearly one half, but the labor one half also, and do away with all machinery.

It is customary with many to feed a milch cow clear corn meal and hay and for a little time she may appear to be doing well, but some morning you find the milk has fallen off wonderfully and probably some of it is ropy, one quarter of the udder is hard and she does not care for any breakfast. Now you are in for a backset sure.

It is the certain result of an unbalanced and concentrated ration. The system is full of fever. The Babcock milk test will show that the butter fat is almost entirely burnt out of the milk.

Here I want to say that the butter fat in milk is more sensitive to changes than any organ of the body. The wonderful variations in the quality of milk from day to day can not be satisfactorily explained by any one, and is one of the few unsolved problems that has attracted the attention of scientists. You may keep the cow from day to day under exactly the same conditions as near as possible, temperature not allowed to vary a single degree, food and water weighed and exact amounts given each day, and yet the butter fat test will show variations.

I have known men to get a contract to sell their milk at the condensing factory, go to the cow sales, buy everything that had a calf by its side (whether it belonged there or not), pay high prices, take them home and feed to each cow an eight quart pan full of clear corn meal at each feed. In the course of a few months we find these same men cursing the whole business and complaining that there is no money in cows, anyhow. Of course not. The man was wrong. The selection was wrong. The breeding has been wrong. The only correct thing is the result, a burned up, dried up, beefy cow.

Many dairy writers say that a cow is a machine, and returns you a profit only after she has appropriated enough food daily for her own support. Well, that is not my idea of a dairy cow. A true dairy cow will return to you a certain proportion of milk if you feed a milk ration. So the point is to combine the foods in a proper manner to contain the standard amount of protein, carbohydrates and fat. Then feed all the cow will safely consume, but see that she eats it up clean and is greedy for the next meal. Corn, oats and bran, each one-third by weight, make an ideal standard ration if you desire to feed ground grain.

Now, the question of profit is affected greatly by the manner in which we make this food combination.

The usual way is to plant corn three or four kernels in a hill, husk it in the fall, put it in the crib. Sow the oats, thresh them and put in the granary.

Feeding time comes on. You go to the crib and fill the wagon box with ear corn, fill a number of sacks with oats and take the load to the nearest grist mill, which is anywhere from one to five miles; probably you must wait an hour or more for your turn to unload, and possibly you can get it by waiting another hour or two, or you may have to go home without it and return next day. You pay Mr. Miller \$1.25 per ton, leave your cobs, and take your chances on a hundred pounds shrinkage. Thus it goes for a few years, then you make a heroic resolve to buy a mill and power and do your own grinding. Well, that is a long step in the right direction. You buy a mill that costs \$75 and a power costing as much more, and you think that you have solved the problem. But, alas, the cold, stormy weather of winter soon presents the disagreeable features of that system, for, if you have ever dug a power out of a snow bank, thawed out the oil can with a fire from a bunch of hay and endured a stiff northeaster for three or four hours while keeping up motion, you then realize it had some drawbacks also. You see I have been through the whole business and know all about it, for I fed a dairy of fifty cows just that way for several years, and probably should be doing it yet if it had not been that so many factories came into Dixon and took my hired help away, not even leaving a boy to drive the horses on the power. So, out of sheer necessity, I got my thinker to work and discovered that cows had a grinding mill and power and sheller, all of their very own, and I commenced to shove in ear corn. By a little further investigation I discovered that they had a husking attachment also, and I put in snapped corn. Well, that tickled me so that I kept on investigating until I found a whole shredding machine without any patent on it, and capable of doing vast amounts of work without repairs, and I rolled in the corn and stalk both together, and results were very satisfactory, but I still had to grind the oats, and that did not quite suit me, so I

experimented and investigated until one day I discovered, what do you think? Well, sir, a whole threshing machine, self-feeder, stacker and all, so now I just drop down the sheaf oats in front of the self-feeder, it picks them up, and, presto change—milk.

I immediately set to work to study the matter closely and decided that by proper previous arrangements I had discovered the means that would enable me to reduce the cost of feed and labor at least one-half, do away with all machinery, save toll, produce a larger milk yield, enable me to meet the constantly decreasing prices of farm and dairy products, besides increasing the income of the farm one-third by selling all the hay formerly fed to the cows.

Am not quite through experimenting yet, for I expect to demonstrate this year that a cow can be kept on two acres of land.

My present method is to plant an acre with corn for each cow, putting as nearly as possible six kernels in a hill; thus I get nearly double the fodder on an acre. The ears are not so large, and hence more easily eaten by the cow; the stalks are not so large around and have more leaves, thus making the fodder very nutritious and relishable. Cut the corn fodder as soon as the ear is mature enough to keep in the crib. The bottom leaves are beginning to turn brown then. Now hustle the cutting. Put in large shocks, so as to have as little exposed to the weather as possible. Draw the tops tight and tie with binder twine.

When ready to crib, husk out five or six average shocks and find how many bushels of corn they yield.

Calculate to leave twenty-five bushels to the acre; husk out the balance by working around the shock without untying any of it. Thus you disturb the shock very little, and your husking is done about as soon as your neighbors.

It is necessary to have a small yard well protected by buildings, sheds and tight high fences to shield the cattle from the cold winds. With warm water to drink, and corn fodder in reach to pick at, the mercury may stand at zero or below and you will not see a humped up or shivering cow in the bunch if turned out regularly from four to six hours every pleasant day. Build frames or racks to feed in by taking five planks 2x12x16. Put two planks on a side and the other plank makes four pieces for the two ends. Put old posts in the corners to nail to, a fence board in the center to prevent the sides springing apart, and you have a bottomless rack that you can take hold of and turn over whenever it needs cleaning of refuse. Thus saving much time and annoyance in cleaning out the old way where stationary racks are used. Get a couple of low wheels, about sixteen inches in diameter, have a couple of old wagon stubs fitted to them, attach to a good strong wood axle, take two 4x4x16, lay across the axle a little behind the center, bolt solid. Bolt a cross-piece at each end. Put a couple of fence boards on lengthwise to fill the middle. Spike on front ends a couple of 2x6 about two feet long for runners. Attach doubletree to front end with a short chain, and in a couple of hours on a stormy day you have rigged up a truck on which you can carry fodder enough for fifty head of cattle, and one man can go to the field, load and fill racks in three-quarters of an hour. Three such racks will hold enough for fifty head. I fill my barn with the fodder whenever I have time to use on stormy days and in the spring.

After milking in the morning I feed bran; after breakfast feed sheaf oats, and they eat those while the man is filling the racks with corn fodder. If the oat straw is free from rust and cured in good condition they will eat it as greedily as hay, and you will find the oats are thoroughly digested. Half an acre of oats for each cow. Cut when the grain is turning and about two-thirds ripe. Be sure the berry is ripe enough to fully mature in the shock, for we want the full benefit of good oats. Bind in bundles the same as usual; put in shocks, standing the bundles in long ricks 2x2. Use your judgment whether to cap or not according to the weather, and as soon as safe, move it into the barn.

After the oats are eaten up, turn out the cows, clean the stables, fill the mangers with fodder corn for night. After milking at night feed bran again.

By having some shoats to follow the cattle there is no wastage whatever. You have saved in a dairy of fifty cows for grinding at least \$125. You will sell \$300 worth of hogs, five to seven hundred dollars worth of hay. One man can do the work of caring for the fifty cows and thirty shoats and ten calves. Your corn fodder will not cost you to exceed \$1.50 per ton. You have saved in the cost of the feed—well, let us see:

A BALANCED RATION.

	P.	C. H.	F.	
8 lb. Bran.....	1.	3.52	24@ \$7.25	=.028
5 lb. Oats.....	.37	1.80	17lb .12c. bu.	=.018
30 lb. Corn fodder.....	.77	8.06	.27@ 4.50	=.027
43.....	2.14	13.38	.68	073
American standard.....	2.15	13.27	.74	
25 bu. corn @ 80 lbs. = 2,000 lbs: 1 acre fodder 3,000 lbs.	3,000	cost \$4.50		
	2,000			
	5,000			

Cutting and binding, \$1.00 per A.; shocking, 50c. = \$1.50, 25 bu. × 12c. = \$3.00.

My daily food for 25 cows is:

125 lbs. sheaf oats = about 85 lbs. oats, 3½ lbs. each	@ 12c. per bu.	= .012
125 lbs. bran, 5 lbs. each cow.....	@ \$7.25 per ton	= .018
600 lbs. corn fodder, 24 lbs. each cow.....	@ 1.80 per ton	= .021
850 lbs. ÷ 25 = 34 lbs. each cow.....		= .051

Comparative cost of two ways of feeding, each system containing 1/3 corn, oats and bran, by weight:

		h.	g.	h.
Corn.....	60 lbs. @	17c.	+ 3+	4+1=22c.
Oats.....	60 lbs. @	15c.	= 29+	4+1=34c.
Bran.....	60 lbs. @ \$7.25			= 21c.
	180 lbs.			= 77c.

g—Grinding. h—Hauling to mill and back.

180 lbs. ÷ 10 lbs. = 18 cows, 1 day, at a cost of.....	77 c. grain
Each cow 20 lbs. of hay at \$7.00 per ton, = 07c. × 18 cows.....	= \$1.26

\$2.03 ÷ 18 = .111¢ per day per cow..... \$2.03

Cost of my way:

	h.	g.	h.
Corn, 80 lbs. at 17c. bu.....	3	4	1=8c.=.09
Oats, 80 lbs. = 2½ bu. at 15c. = 37.....			8 = 29
Bran, 80 lbs. @ \$7.25.....			= 28
240 lbs. ÷ 10 = 24 cows 1 day			66c. grain
Corn stover, 2c. × 24.....			= 48c.
Total food cost for 1 day.....			\$1.14 ÷ 24 = .0475 per cow

I save the husking, grinding and hauling, which reduces the cost of my grain 8c. per bu., and deduct it from the market price at Dixon on the day these figures were made, January, 1897.

Some cows are in full flow of milk and some nearly dry. By taking some feed from the nearly dry cows and adding it to that of the fresh cows, each is receiving a *full feed* according to the milk she gives.

But I see an old farmer back there who has been stuffing ground feed into his cows all his life, thinking this is all humbug, and cows fed this way would not give milk enough to grease a dish rag with. So here are some results:

At our condensing factory there are 205 dairies represented. For 3 years a dairy of 35 cows fed nearly this way has reached the highest average, 6,500 pounds milk per cow, and of course received the highest money average per cow, which was, in 1894, \$75.50; 1895, \$75.60.

The milk has averaged in butter fat as high as any other dairy, and very much more even in both quantity and quality.

The cows have been very free from disease or caked udder.

This system is being adopted by others, and is proving successful with them.

The milk company own three large herds, and employ practically the same feed, only they run the fodder through a husking and shredding machine, feeding the corn back whole and sheaf oats and bran.

Their object in shredding is to get bedding from the refuse.

In conclusion, let me say to my young farmer friends, if you have back bone and grit, and want to own a good farm, go home, think over this, and start-towards a good sized dairy. Even if you only have means enough to buy one cow, it will not be long before you can buy another, or a heifer that will soon make one, and pick up those calves that your neighbors are so anxious to get rid of for one or two dollars apiece. Two cents per day will raise them, and they grow and multiply while you work and sleep. Soon you have gotten on the right side of prosperity, and can lift yourself up, up, up, until your wealth is not only counted by the broad acres, spacious buildings and numerous kine, but by a broader intelligence, higher aspirations and a noble determination to demonstrate to the incredulous that *our profession* is quite as honorable, fully as enjoyable, and as surely remunerative as any.

DAIRYING FOR THE YOUNG FARMER.

By Roy E. Swigert, Palmyra, Ill.—Read before the Lee County Farmers' Institute.

What occupation is today offering greater inducements for farmers with limited means and young farmers just entering the farmers' role for themselves? There are hundreds of farms in central and, yes, all over the state, that would be greatly improved if dairying was followed more extensively. The market for Illinois dairy products is established and the demand practically unlimited. We are all coming to a conclusion that farming along one line, and especially that in which we produce to sell in the raw state, does not pay. Diversified farming, that in which we branch out into more channels, by means of which we can make larger profits, is the better; such as those in which we feed our produce for some product that we can sell to a better advantage and receive better profits from. This is the aim of every farmer, and we must turn our thoughts toward this change. The young men who are becoming tired of farm life do not become so from the hard work. It is from the work which seems to yield very small profits for the amount of work done. No one can attain success and prosperity in this world today unless he works, and works hard. Not only with the muscular forces, but with the reasoning powers must much be foreseen and done. There is certainly plenty of work, but not necessarily hard, burdensome work in dairying.



ROY E. SWIGERT.

With young men who are willing to work and who are capable of attending strictly to business, there is today no better occupation and none more profitable than dairying. Therefore, why should young men not turn toward this important industry, and fathers especially endeavor to interest their sons in

the dairy. Dairying today is doing more to advance the farming districts than any other branch. Those so engaged must keep abreast with the times. Constant investigation and close attention must be maintained in every part to secure success. If farmers find that this pays in dairying, they will soon see that it can be profitably applied to all departments of the farm. Exchange ideas with your fellow neighbors, attend the county institutes, and you will soon discover the great advantages to be gained and especially in dairying.

New ideas and new methods are constantly being formed, tested and given out for the use of the public, and nowhere are they brought out more forcibly than in our institutes. Young men, if you intend starting in the dairy business you must make up your mind to attend strictly to the business. Be prompt, have a time set for milking and feeding and perform the work then and not deviate therefrom. You must, and certainly can learn the most of dairying by experience; it is a hard schoolmaster, but the best we have found in nearly eight years. You can gain many important points from others, but the minute and essential details, in fact, those that seem of minor effect, must be found out by self. And, furthermore, experience will show that they are of the greatest need and value. If you can attend a thorough dairy school it will be a lasting and exceedingly helpful benefit. There you can learn all about the cow—feeding, care, treatment in case of sickness and the various needful breeding qualities.

Illinois, though proud we are of her school, I am sorry to say has sadly neglected her dairy interests. The department at Champaign can give to young men a thorough knowledge of "farm dairying," but can not educate young men sufficiently for factory operatives and can not do anything in the line of cheese-making. Farmers, are we going to allow our sister states to far excel us in this great and needful industry? Arouse yourselves and see that your representatives do all in their power to promote and increase this long neglected branch of our agricultural college. See that just and stringent laws are made to protect the dairy interests. And, who are more capable of doing this than the young men who engage in this industry? We must have more protection, and in the not far distant future we will get the proper legislation.

In choosing cows for a dairy, much depends upon the results aimed for, whether for city delivery, creamery, condensing factory, butter or cheese. Cows for condenser or city market must aim for quality as well as quantity.

There is never anything made or gained in selling low testing milk no matter what the market may be. One of the greatest drawbacks in the dairy industries today is the poor quality that people produce. It is the great cause of so much cheap butter that you hear about. Produce a good article and you can receive a good honest price. We have been selling milk to the Anglo-Swiss Condensing factory of Dixon for nearly eight years. Our breeds of cows are all what might be called native cows. The majority of our cows come from Iowa. Few Holsteins and no Jerseys are found. The Holsteins, though great milkers, do not come up to the standard of quality and hence the factory objects, and they do not last long enough, very much dissatisfaction being found with them. The Jersey is strictly a butter cow, though of great profit to the company, of no more to us than the common grade. We sell milk by the hundred pounds. A cross of the Durham and native cows with Holstein sires have given excellent results. Here is one of the most important points in dairying, the getting of good milch cows. We believe the cheapest and best is to raise your own. The farmers about Dixon claim that the buying of cows from strangers is about as certain of surety as investing in a lottery.

Study the characteristics of a perfect cow, obtain the best you can and in breeding be sure of the record of the sire. Here is where much depends, no matter what the quality of the cow. Breed for neatly built cows, with large food capacity. See that the udder is square, broad in the rear and that the front and hind parts of it are developed alike. Teats not too close together and thinly haired udder. Give us the cow that is thin across the throat with neat and not overly large head. Look for a poor milker with a steer head.

These points we have obtained from our past experience; it is none too true that many of you older men know these fully, but I am talking more especially to the young farmers. In raising your own cows train them carefully, be gentle and give the heifers good warm quarters. When first fresh milk them as long as they will give milk, do not try to dry them up when the flow becomes small. Try to have them hold out as long as they will. It is the cow that holds out and not the one that flows out at the start, then soon decreases, that is the most profitable. Milk as quickly as you can. Avoid loud talking or anything that may cause a cow to become frightened, as no animal's nervous system is more easily excited than the cow's.

Such shocks or any severe treatment will very soon show its effects by a decrease in the flow of milk. Do not depend too much on others, see to the work personally, it is a confining work but it is the only way to succeed in the business. Cows need all the kindness you can give them. They require warm, well ventilated and freely lighted stables. Have things arranged as conveniently as expense will allow and above all keep your barns clean, floors or mangers free from accumulations that might breed disease. Where it is possible we have found that hauling the droppings to and spreading upon the field daily as taken from the barn to be of great advantage. It keeps the yards cleaner and it does not require as much time in the spring to haul. Where cut or shredded corn fodder is fed, the refuse after the cows have eaten all they wish is the best bedding obtainable. It absorbs all the liquids and keeps cows much cleaner. It is very much easier to spread in the field and can be done much more evenly. We can readily say from experience that it pays to cut or shred fodder if for bedding only, to say nothing of the convenience of handling for feed. The idea that is advanced by many that you can get cattle to eat more of the fodder by cutting or shredding is erroneous. They can be starved to do it, but you will lose more than you ever gained. They will not eat it if anything else is obtainable. The woody fibre was never intended for food. In grain feeding many ideas are advanced. In all our trials, and we have tried nearly all, we find that corn and oats fresh ground, half and half, and fed is the best. Bran can be fed with profit at times and should, we believe, be fed if feeding all corn fodder, in order to more equally balance the ration. But the aim should be to feed what you raise on the farm. In stovers corn fodder of good quality, fresh and bright, is one of the best feeds. It can not give the results obtained from good clover hay. But so much clover hay is of so poor quality that it will equal and many times surpass it. Feed as much rough feed as a cow can eat up reasonably clean, but in feeding meal your own judgment must dictate, according to the cow and the results obtained. Feeding for butter and for selling milk are nearly, if not exactly alike. We must aim for a certain per cent. of fat; we need not go above it, but the butter-maker's aim is to get as high a per cent. as they can. If we did not sell to the condenser we would make butter-making a practical business. Many farmers are making butter contracts with city patrons both at home and away from their own towns with good profit. The butter market has been very encouraging this fall and winter. Patrons of the creameries and cheese factories at Elgin are now receiving more than patrons of the condensers. Farmers, educate your sons in this branch of the farm and see what the results will be. They may fail at first, but if good energy and plenty of push is used, success will crown their efforts. You can make your cows yield you a fine income, where perhaps today it is small. Our farmers are all doing well; some doing better, of course, than others; the highest, I believe, has an average of \$75 per head per year. One of our neighbors with a small herd of Jerseys by selling by contract to city patrons has received from some of her cows \$90 per head. Young men, can you not develop yourselves into dairymen and do as well? You certainly can if you try. Keep none but the best, test your herd, find and sell the poor ones; a poor cow is dear at any price. She requires as much care and consumes as much feed as a first class one.

Do not try to practice the so-called economy of feeding old cows; it will not pay. Know what you feed, how much, and if producing a loss or gain. Good care and judgment in securing stock is one great essential. Cows exposed to wet weather, cold wind and rain will not yield profits. Warmed water is of great importance.

One great advantage to be derived is the increasing of the fertility of the soil by the large amount of fertilizer furnished. All of your crop is returned to the soil and with what wonderful rapidity you can bring up the productiveness of an old worn-out or run down farm. Dairymen today are not raising enough per acre; they must try more and find out better methods of so doing.

And in closing I might ask what class of people are standing hard times, that is, are getting along better, having enough, and many more than enough to eat? What class of farmers are better able to cope with the times than the dairymen? Of course there are many drawbacks and losses in dairying, but where can you realize more from your corn and oat crop than by dairying, at present prices especially? There is no doubt but what it will pay anyone who will undertake it. There are many so-called "kickers" in this field as well as in all others, but we have yet to see one who made a success at anything, even his own kicking. These men are more harmful to young farmers than any other class of people. Because they do not succeed is no reason why you and I can not. More young men seek employment other than on the farm by the talk and advice of these men than from any other cause.

Give young men on the farm all the encouragement you can. Is it not the one who practices diversified farming who will make the most from it? Iowa farmers told me that two years ago (and the same was true last year and also this winter,) they could not sell their cows, as farm produce was so low in price that all the revenue they had was from their few cows. Cows today are selling at the Dixon cow sales for \$40 to \$50 per head for good average cows and then you run all the risk that you care to do, as they are liable to prove defective somewhere. Would not the raising of cows be nearly, if not more profitable, than that of raising so many steers? Many of the dairymen are raising their own cows from calves of the best stock. Dairying will not only build up the farm but will increase the valuation of farm property greatly.

In closing I wish to say, attend the dairy school at the State University, learn all the requirements, and then, young men, go to work and start a thorough dairy; though small at first you can soon increase and you will find one of the most profitable and substantial branches of farm work. Fathers, interest yourselves in it and it will prove a lasting benefit to the young men and the farm.

BUTTER.

By Miss Alice Walker, Danforth, Ill. Read before the Iroquois County Farmers' Institute.

Butter making is naturally a wide and important subject to discuss, and making of butter is a business that requires a great amount of hard labor and attention, as well as a full amount of cleanliness.

First thing, one must keep good cows, and secondly, cows must have good feed. A poor quality of feed is certain to injure the quality of milk and cream. Clover pasture is best, both for quantity and quality of milk. In winter, cows should have clover hay and ground feed of corn and oats.

In connection with the shorts Mr. McDougal spoke of, I should suggest that clover hay was a great benefit as feed for cows.

Corn stalks and oat straw will neither make quantity nor quality of milk.

As for raising cream, I think the Cooley Creamer and cans process the best, the cans being submerged in water, although there must be an air-space between the lids and cans to let the odor of the milk escape while the cream is rising.

This method of raising cream is far ahead of setting milk—the old style way—in pans and jars.

By the use of the Cooley Creamer it is also beneficial to have ice and keep the milk ice-cold, as the cream rises much sooner.

By the use of ice-cold water the milk will raise all of the cream it will raise in three hours; also, by submerging milk in water, one will always have sweet milk, which is a great benefit for feeding purposes.

In preparing cream for churning in summer, one must be careful not to let it get too warm and old before churning. Cream about 56 or 58 degrees is about the right temperature for churning; in fact, in summer it is best to churn cream direct from the ice-water.

In winter, the cream can be churned at 64 degrees without injury to the butter, and care must be taken not to let cream get too old before and while souring. To avoid this, cream should be warmed to about 70 degrees after being gathered and before putting in can for souring.

After cream is churned to butter (the best way is to have butter about the size of a pea), drain off the buttermilk and then wash with pure water (rain water thought to be best, as so much of the well water contains iron, sulphur or salt ore). After thorough washing, butter should then be salted with fine dairy salt, Ashton or Higgins dairy salt being preferred to the common barrel salt.

To have butter salted in a uniform manner, it is advisable to weigh the butter, then the salt, allowing one ounce of salt to one pound of butter, and two ounces extra to the butter bowl for each eight pounds of butter.

Butter should be worked until streaks are out, but not enough to injure the grain of butter. After working, butter should be packed into sweet pails or jars.

Jars used for butter should not be used for any other purposes, as butter is a very sensitive article to take odors from all kinds of vegetables and impure matter.

Above all keep the cream and butter away from the vegetable cellar or where there is an amount of steam and odors from vegetables while being cooked.

BUTTER MAKING.

By Mrs. H. S. Magill, Auburn, read before the Sangamon County Farmers' Institute.

The knowledge of butter making extends so far back into the ages of antiquity that it is difficult to find its origin. We are told in Genesis that Abraham set both milk and butter before his angel guests. In Judges, Deborah speaks of "Jael, the wife of Heber," "who brought forth butter in the lordly dish." In Proverbs we are told "surely the churning of milk bringeth forth butter." The churning of milk seemed to be the only way known by the ancient people of making butter. As the centuries have rolled away, we think descendants have learned a better and easier way of taking cream from the milk first.

Now at the close of the nineteenth century two questions confront the dairymen. The first and most important is: How or by what means can he best secure the cream from the milk so as to produce the most and best quality of butter? The second question, How to handle and convert the cream into a first-class butter that will not only be sweet when made, but will retain its prime flavor until used?



MRS. H. S. MAGILL.

At the present time there are three methods in use to obtain the cream from the milk. The first or oldest is the shallow setting of the milk until the cream will rise, and later the deep setting or creamery method, both of which obtain the cream by the well-known laws of gravitation; the third, or latest method, is by the separator, which takes the cream from the milk by centrifugal force.

Now, all dairymen know that with good cows, good, clean pasture and plenty of clear, cold water, with a temperature of the air at from 50 to 70 degrees, it is not a difficult thing to make good butter and plenty of it by the old methods. But in the hot summer time, when the mercury rises all the way from 70 to 90 or 100 degrees, and the water becomes scarce, and the pasture bare and no ice in store, it is then the butter maker is tired, and her judgment and skill tested. Then again in winter, when the mercury sinks all the way from freezing to zero, and the cows are on dry feed, the butter maker is taxed to keep up the quality as well as quantity of butter. In butter making, as in all other occupations, each individual has an experience of her own, and after all that has been said and written on butter making, I can not tell you anything new. I can only briefly relate my own experience, which embraces forty years, the first twenty-five with shallow setting of milk, ten years deep setting or creamery method, and the last five with a De Laval Baby Separator. Now, as I take a retrospect of those years, while I know I made good butter by the old method, yet I would as soon think of giving up my swift, true, light-running sewing machine and going back to hand sewing as to return to that method of butter making. We are all more or less creatures of habit, and become so attached to old methods it is hard to change to new, untried ones, or to believe there is a better way.

I had long read of the superior way of the deep setting of milk, but not until my husband bought me a Champion Creamery did I believe all that had been said in their favor, the first week's use of which convinced me that I had been losing one-third of the butter fat in the old method of shallow setting, for with the creamery I would use ice, and I soon found that by quickly cooling the milk I could obtain one-third more cream in twenty-four hours, and keep the milk sweet. The creamery was a great saving of labor, as the skimming was simply drawing off the milk in one vessel and the cream following in another. Besides, the cans were so easily cleaned without lifting. But to obtain the best results required a large amount of cold water, or a very great amount of ice. Then there came a time of drouth, the wells gave out and there was no ice, then the question, what shall we do when summer comes? We can not make butter without either cold water or ice. Just at that time we received an advertisement of the Baby Separator. My husband sent for one on trial in the spring of 1891. If we liked it we were to keep it and pay for it; if not, return it. Well, it came without one word of instruction, how to put it together and use it. However, we got the machine together and used it, and are using it still with the best results. With its use we get all the butter fat out of the milk while it is still warm from the cow, and the warm separated milk is so good for calves or young pigs. All the work done in one hour without cold water or ice.

With the use of the separator I think the first dairyman's question is satisfactorily answered, namely, How or by what means can he best obtain the cream from the milk so as to produce the most and best quality of butter? The second question: How to handle and convert that cream into butter that will be sweet when made, and retain its flavor until used? In my own experience, while I could make good butter with the old fashioned dash churn some seasons of the year, there were times when I felt the need of a churn by the use of which I could wash and cool the butter while in the granular state. My husband bought for me a Davis swing churn, with a dog power attachment, also a Eureka butter worker, which I have used the last fifteen years with great satisfaction. Cream from a separator (after cooling) should be left to ripen or become slightly sour. I have found a temperature of 70 degrees about right, and as I churn two days' cream at a time, add the cream from each milking, thoroughly mixing it, so it will ripen together, and never churn until the last added cream is at least twelve hours old. Then cool it in summer to 60 degrees before churning, in very hot weather to 58 degrees, and

right here let me urge the necessary use of a dairy thermometer. A writer for the Orange Judd Farmer lately said: "There were tons of butter annually lost in the butter milk by churning the cream while too warm." And I believe this statement is true. Besides a great deal of time and labor lost that might be saved by the proper use of a good true dairy thermometer.

In winter, when the cows are on dry feed, raise the temperature of cream higher, before churning in very cold weather, 65 is not too warm. Start the churn with a motion that will bring the butter in form, thirty to forty minutes. As soon as the butter granules become as large as wheat kernels stop the churn, draw off most of the butter milk through a wire strainer, and add water, draw off again and repeat until the water is clear. Then remove the butter from the churn and weigh it, and for every pound of butter add $\frac{3}{4}$ oz. of fine salt, place all upon the butter worker and thoroughly mix the salt through the butter, pressing out all the surplus water, then pack it for shipment. I have adopted this way for the last three years, and find it better than the second working, as I have learned from experience that too much working injures the grain of the butter and its keeping quality. I have adopted this plan with satisfactory results, and the last summer, with its intense heat, has not prevented me from packing this granulated butter right from the churn. Of course to do so necessitated early rising to do the work in the coolest part of the day. Yet there is to me great satisfaction in overcoming obstacles in the way of butter making. As to the quality of my butter I refer you to my patrons, whom I have supplied many years. In conclusion allow me to urge the necessity of cleanliness not only in milking and handling the milk so as to keep out all impurities, but also the necessity of thoroughly washing and scalding all vessels and utensils used in butter making. A statesman has said, "Eternal vigilance is the price of liberty." I will apply that motto to butter making. Vigilance and careful attention to details is the price of good butter.

THE COUNTRY SCHOOL, ITS NEEDS AND POSSIBILITIES.

By A. H. Melville, Normal, Ill. Read before the McLean County Farmers' Institute.

LADIES AND GENTLEMEN OF THE INSTITUTE:—I am happy to be here this morning and to discuss with you a question which is of vital interest to every parent and child in Will county. I shall not indulge in any glittering generalities, braggadocio, etc., common to a species of Fourth of July oratory, but shall offer for your consideration some problems and questions based on a careful study of the topic assigned to me by your committee.

That our schools have reached a place where they are an important factor in the affairs of the district and county; that they yield an immeasurable influence for good; that they, in their determining character mould our national life and civilization, are statements which no one will question, and of which we are justly proud. The little tots, dinner buckets in hand, with a kiss for mamma and a "goodby papa," and their merry voices ringing out on the morning air as they go trudging down the country road, or across the meadow to the little school house, are sights which make a parent's heart swell with pride. And when you remember that in that boy or girl of yours, with proper training, are the possibilities of a noble man or a noble woman whose ambitions and aspirations are limited only by the amount of effort and study he is willing to put forth; that he himself is his only barrier to success, how careful we should be in training these little ones. Probably no where else in the world is it true that the child may rise so high socially and intellectually as in America. Only a few days ago a professor in the State Normal School remarked that he had been greatly touched by a scene which he witnessed in a small city in Southern Illinois. The occasion was the commencement exercises. On the stage were only two graduates—girls. Their faces were bright and happy. They were well dressed yet plain, and indicated that they were not the daughters of wealthy parents. On inquiry he found that they were both the children of washerwomen and assisted their mothers at the washtub

daily in order that they might stay in school. No end of attention was paid to them. Their friends showered them with flowers and gifts, and after the exercises were over the wealthiest man in town threw open the doors of his home and gave a reception in their honor. Could such a scene have happened anywhere else? Could it have happened in France? No. Once a peasant, always a peasant. Could it in Germany? No. There poverty is an insurmountable barrier to position and distinction. Could it have happened in England? No. For practically the same reasons. Could it in America? Thank God, yes.

We are proud of our schools. We have fostered them from the beginning of our history. They are the outgrowth of a free government. No department of public interest is guarded more jealously. And so it should be.

But we are not content to stop with our achievements, we must push on to still greater ones and rise on stepping stones of our dead selves to higher things. The past has been rich in fruitage. But he who stops in middle life satisfied with his partial success is doomed to certain destruction. He must deteriorate. Our best carpenters today are not men who put up a building as it was done fifteen years ago. Farming has changed materially in the same length of time. Machinery, the need and value of succession of crops, the problem of materials for enriching the soil, all these things place farming in the category of progressive sciences, gentlemen, or you would not be here to-day earnestly discussing these questions. And I might add school-teaching is likewise a progressive science. Better requirements are every where being required of those who are desirous of teaching. The man who steps into the school-room today and teaches school as it was taught a few years ago is not keeping pace with other members of his profession. He is a back-number just as much so as is the farmer of today who plants corn during a certain phase of the moon and refuses to butcher a hog because the wind is not in the right direction.

"New occasions teach new duties;
Time makes ancient good uncouth;
They must upward still and onward;
Who would keep abreast of Truth."

And so I now come to the discussion of the first one of the needs of the country schools. What they need most is skilled teachers. In Will county your superintendent tells me only one-fifth of the teachers have had any training for their work of teaching. The other four-fifths are graduates of the district, grammar and high schools and started to teach immediately after graduating from the elementary and secondary schools and before they had had a day of training for their great work of teaching. The graduates of our Normal Schools and those who have had one or two years training, and, in fact, the bright ones every where are being drawn into the city systems where better pay and greater advantages are offered. Consequently the country schools, as a rule, of course with some exceptions, are left at the mercy of novices or otherwise unprepared persons. I do not wish to say that only professionally trained persons make good teachers. For some of them make bad failures. It simply is not in them to teach school any more than it is in some people to farm or sell goods successfully. I shall not assert that all of those who do not have professional training make failures. For some of them make excellent teachers. But I shall insist that in all probability these persons would be better teachers if they had training, and surely the ones who have no natural bent in that direction could be very materially helped. But Will county is not an exception in this direction. On investigation I find the same to be true of a majority of the counties in the State.

And why should it be so? There is not a person here who would send his shoe to any one but a skillful shoemaker to be mended, or call any one but a practicing physician to minister to his bodily ailments. In each case you want a trained person. And yet we are continually employing people who have never spent a day in special training for their work.

The professional ability of the average teacher is low in the rural school. Too low. And why? Simply because you do not demand a higher grade. The stream can not rise higher than its source. It rests with you. If you de-

mand only professionally trained teachers you will get what you ask for. And friends it is due to your children, to you severally, and to the community that you should have them.

Along with the demand for professionally trained teachers should go a raise of teacher's wages and a lengthening of the school term. The average wages for summer in Will county are \$30, for winter \$35. These wages are inadequate when you remember that the teacher must to begin with pay from one-third to one-half of his wages for board. He must dress well, attend township, county and State teachers' meetings, take the best school journals and buy new books from time to time as they are published to assist him in his work, all of which takes money. I have already alluded to the fact that the best teachers are drawn to the city where better wages and greater advantages are offered. Until the country schools offer equal advantages with the city schools they can not expect to command as efficient a teaching force.

According to the late report of the State Superintendent of Public Instruction, careful estimates show that 50 per cent., or one-half of the school children of this State get their education in the district schools. Over 75 per cent., or three-quarters of these pupils quit school about the age of 12. Some of them because they dislike school, but a greater number because they are needed at home to assist about the house or to take a hired hand's place in the field with a team. And during the few years that the boy does attend, his school year is shattered because he is so handy for plowing and husking in the fall, and for putting in the crops in the spring. Is it right, fathers and mothers, that the country boy's education should be so curtailed in this way? And if it must be so, in the light of these facts that one-half of our population is educated in the country schools, and that three-fourths of these quit school before the age of 12, is it not our duty to provide these boys and girls with the best teachers within our means, and to make the school cause just as thorough as possible, and just as rich as possible, and to carry these children as far as we can in their work the little while they attend school?

The supervision of the rural school under the present system as a rule is inefficient, and I believe does little good. The superintendent is able to visit them only once or twice a year. Sometimes not at all.

The directors are busy and can not take the time often. If the teacher is conscientious and well trained, everything goes all right. Otherwise, because of the lack of supervision and teachers' meetings, by which the city schools are so much benefited, the school may run down. As a rule, no statistics or records beyond the number of males and females in attendance are required or kept. Each teacher begins his school as if no one had gone before him, and as if he expected no one to come after him. What would you think of a bookkeeper who keeps books in that way. There should be a permanent record kept of the amount of work accomplished in each subject in each grade. The incoming teacher should confer with the outgoing one, and endeavor to learn all he can of the children, their temperaments and their work. Often a new teacher will go over work in the school which has been gone over with the same pupils, perhaps twice or three times before by his predecessor. And sometimes he will misunderstand some child of peculiar temperament for weeks, while an hour's talk with the old teacher would have thrown much light on the subject and saved a great deal of trouble.

Another great need in our schools today, is that of school libraries. Only one-fifth, or two schools out of nine in a township have a library. This should not be so. A school library need not be large, but it should be carefully selected. Five dollars (\$5.00) will purchase ten to fifteen excellent books, to which others may be added from time to time. A neat book-case with lock and key can be made by the boys. To such a library gifts will be made by patrons of the school. Such things as reports, old pamphlets and the like, should be carefully discarded. Above all the library should be interesting and useful. The value of such a library, I am sure, is obvious to every one. It will be used every hour of the day for reference in all branches studied. It will give the boys and girls an opportunity to read and get acquainted with good books, and form a liking for good literature. It will counteract the bad influence of the trashy novels and sensational story papers

which are a curse today. The reading of a book like Franklin's Autobiography or Tom Brown at Rugby, may be the means of arousing one boy to shun his bad habits and make a man of himself, and of another one to go to college. It is impossible to estimate the influence for good which a school library has.

A great deal of the education in both city and country schools is impracticable, and of little use except for the mental discipline it affords. And if the child's arithmetic and other studies do not assist him to perform the duties of every day life better, if they have no connection with his life at home, in work and play, surely our schools are not accomplishing the purpose for which they were established. Arithmetic is taught from the time the child enters school until he gets through, and yet five times out of six, when the boy's father asks his assistance in measuring a field or in fencing it, he is of no use at all unless his book is under his arm. And may be not then. He is unable to apply the knowledge which he has learned. We have the children do too much book-worming. Would it not be better to make the child's experiences the basis for arithmetic work. For instance, problems like the following: Find how long and how wide your father's pasture is. How many and what will be the cost of enough posts to go around this field, if the posts are a rod apart and cost — cents apiece? What will be the cost of enough barb wire to enclose this field if the wire costs \$2.25 per hundred pounds, and there are three wires on the fence? What is the total cost of fencing the field?

Again, your father has — acres of corn. The field yields 50 bushels per acre, and the corn sells for 20 cents a bushel. He pays \$3.25 an acre rent. Seed corn cost \$6.00. Shelling cost a cent a bushel. Work of ploughing, planting, cultivating and harvesting is worth so much. Did the corn crop pay or lose, and how much? Let the child find out every fact as measurements and costs for himself. Let him actually make the measurements and estimate the costs. Then there are problems of buying and selling lumber for sheds and barns, digging cellars, of putting in tile drains, cost of tile, cost of digging, measurements of rooms for carpets, painting and papering, and dozens of others which bring into practice every principle in the child's arithmetic, and which will make his school work fascinating and highly useful.

As I have just intimated, we keep the child too close to books, while the great book of nature all around us lays unopened. There should be more study of the great book itself, and less study of books. The country school, surrounded by nature's forms—trees, plants, flowers, the birds, common animals—afford excellent opportunities for work in elementary botany, zoölogy and physiology. The hills, the valleys, the soils, the brooks, and the air invite us to make them subjects of attention in our geography and physics work. This is the character of work which is being done in the country schools all over the State where there are trained teachers. One of the best illustrations of the efficiency of this work that I call to mind was in Peotone township, where a young well trained teacher took a frog which a little tot had brought to school, and putting its foot under a strong microscope which was borrowed for the purpose, gave those children a lesson in physiology on the circulation of the blood, which they will never forget. By the aid of the microscope the children could see the blood coursing through the veins and arteries.

An acquaintance with nature is the basis for a vast amount of thoughts and school work. The objects about the child will have a new meaning through nature study.

It will help him to understand his reader and geography better. It will make him more observant. It will teach him to be kind to animals if he be unkind. It will make him more gentle and loving towards his fellow creatures. A close contact with nature's forms will lift him up; for they are God's purest creations which have not been corrupted by the hand of man. And when this work is being done the other formal studies, grammar, arithmetic and reading, need not be neglected. I venture to say their books will be the more interesting because of the impetus which is received from the nature study.

There are four great purposes of the public school. The first is the acquisition of knowledge. The child goes to school to learn to read, write, and figure. The second purpose is mental discipline. He goes to school to get his mind disciplined into the habit of accuracy and thoroughness in everything he says, writes, or does. Third, he goes to school to gain power or strong lively mental activity. He wants to be able to think well. The fourth purpose is the one which the child thinks least of, but which every true teacher has uppermost in his mind—good character. These four things, acquisition of knowledge, mental discipline, lively mental activity, and character building stand for the aim of our public schools. But the greatest of them is character building.

But character building can not accomplish its purpose without the other three. The child can not have a strong mind without a fund of knowledge, attention and thoroughness. And a strong character depends on a strong mind. Childhood is the time to form character. It is then that the mind of the child is plastic and can be moulded into any shape we will. The effort to remodel the character of a grown man or a grown woman is an almost hopeless task. "Statisticians tell us that out of a thousand drunkards who try to reform only three permanently abandon the vicious habit." The rest return again to drink sooner or later.

How pitiable a sight is the man who is always going to do something and never does it. Or the one who always has a struggle between two opposing forces, or the woman who frets and worries because she thinks it is going to rain, or because she can not decide whether to go to a picnic or to stay at home. All these are examples of weak will power and unstable character.

The formation of good habits is the foundation of strong character. Habits of study, accuracy, carefulness, thoroughness, the ability to form judgments of right and wrong, to act decisively. All these are fundamental. When Napoleon found the Alps obstructing his path he scaled them. Other generals would have stood still and then given up in despair. When Andrew Jackson found the British under Packenham, Wellington's chosen general, advancing on New Orleans he threw up earth works and with his army of backwoodsmen and militia swore he would defeat the British, and he did. During the late financial trouble report was current that a certain man had failed. "No, that is impossible," said the president of a large firm, "his character and will are worth millions, and I will gladly employ him if he will come to me."

In a nation like ours the character of the government will depend on the individuals which compose the government. And many of the qualities which determine the individual character also determine the national character. That nation whose ambition is to gain dollars, or have pleasure, or power has a low purpose. And, as for institutions, may not the same thing be said of them? It is individual men and women that go to make up the normal standing and stability of a nation. Where the masses of the people are sound in morals, conscience, and habits, the nation will be ruled honestly and justly. But when the masses are dishonest, corrupt, and selfish, so will be the government. When the best element in the people, inculcated in childhood by the home and the schools, rises up and denounces political roguery, and wire-pulling, then will such dishonoring and debasing practices cease, and not until then.

A man of national reputation recently said, "Government used to say 'the throne rests on the altar.' To-day they say, 'stable government rests on the common schools.'" The common schools are established by the government and hence one purpose of them is to teach patriotism and make good citizens. But good citizenship depends on the great purpose of the public schools, good character. A good citizen is one who has a good character and loves his country. We love our country. And right we should. Nations, like individuals, derive much strength from the feeling that they belong to a line of noble ancestry and ought to perpetuate the priceless gifts handed down to them. It is a grand thing for a nation to have a past to look back upon and admire. It stimulates and moves one to duty. It elevates and upholds our present national life. It gives us ideals and purposes for the future. It acts as a guide by which we steer our craft.

What American is not stirred as he reads of the struggle of our forefathers for independence, or contemplates our glorious undivided Union now at the head of nations? What head does not bow and breathe from his soul a prayer of thankfulness to Almighty God for the gift of a Lincoln? Can you stand by his tomb in yonder capital and not feel that the presence of his remains has been a benediction? What a pure, upright, honest, noble character; what unselfish patriotism. To quote Longfellow—

"Lives of great men all remind us
We may make our lives sublime."

Contrast with this the life and death-bed scene of the traitor, Arnold, and you will have two types of lives as far apart as the east is from the west, the one the loved and exalted character, the saviour of his country; the other, the selfish, deceitful traitor, whose name is breathed only with curses.

I would have our schools teach a noble patriotism. One which elevates the community by its noble work. That does it rightfully and manfully. A patriotism that lives an honest, upright, sober life. That makes the best of its opportunities in every day life. A patriotism which teaches that industry, frugality and economy are virtues. And along with this a patriotism which cherishes the names and deeds of the noble men who have fought and suffered for the freedom of our country and won for themselves eternal glory and for our nation free political institutions.

In closing let me sum up the points of my address. What our schools need most are trained teachers, school libraries, efficient supervision, less of books and more of nature.

Their great purpose is to build up the characters of the boys and girls entrusted to their care—to make manly men and womanly women.

RECREATION FOR THE FARMERS' WIFE.

By Mrs. Ellen M. Overocker.—Read before the Grundy County Farmers' Institute.

Up with the birds in the early morning—
The dew drop glows like a precious gem;
Beautiful tints in the sky are dawning,
But she's never a moment to look at them.
The men are wanting their breakfast early;
She must not linger, she must not wait;
For words that are sharp and looks that are surly,
Are what the men give when the meals are late.

Oh, glorious colors the clouds are turning,
If she would but look over hills and trees;
But here are the dishes, and there is the churning—
Those things always must yield to these.
The world is filled with the wine of beauty,
If she would but pause and drink it in;
But pleasures, she says, must wait for duty—
Neglected work is committed sin.

The day grows hot and her hands grow weary;
Oh, for an hour to cool her head,
Out with the birds and wind so cheery!
But she must get dinner and bake her bread.
The busy men in the hayfield working,
If they saw her sitting with idle hand,
Would think her lazy, and call her shirking,
And she never could make them understand.

They do not know that the heart within her
Hungers for beauty and things sublime,
They only know that they want their dinner,
Plenty of it and "just on time."
And after the sweeping, and churning, and baking,
And dinner dishes are all put by,
She sits and sews, though her head is aching,
Till time for supper and "chores" draws nigh.

Her boys at school must look like others,
 She says, as she patches their frocks and hose,
 For the world is quick to censure mothers
 For the least neglect of their children's clothes.
 Her husband comes from the field of labor,
 He gives no praise to his weary wife;
 She's done no more than has her neighbor;
 'Tis the lot of all in a country life.

Such is the word-picture of farm life for women, which Ella Wheeler Wilcox paints. Do you say that it is overdrawn? That the farm homes are few, where the ceaseless round of duties keep the wife and mother busy from early morn to evening's latest hour?

We know there are farmers' homes which meet many of the conditions of ideal living; where all of the necessities, many of the comforts and some of the luxuries of life are found in abundance; where mental and moral culture finds its richest soil, and surest growths, where some leisure is found for books and music and social enjoyment. But such homes are rare and will become still more rare as time moves rapidly on unless farmers are to receive better remuneration for their products than at present, or than the outlook promises for the near future.

But there are now other homes of which we know, full of little children, with one or more farm hands in the family, where the mother is cook, wash-woman, scrubwoman, chambermaid, seamstress, buttermaker and nurse girl all in one.

Just think of the numberless steps taken, the ceaseless thought and toil; the absolutely unremitting grind required to accomplish the work in such a family. We can see the numerous loaves of bread and cake, the rows of pies decking the pantry shelves, which must be kept spotless, we can hear the swish of the churn, and see the long line of clothes which must be carefully ironed and put away, and the mending basket piled high with torn and worn garments which must be looked after, beside the many new garments to make, then there is the sweeping and the dusting, the scrubbing and the meals to get three times daily, and the everlasting dishes to wash, all this—interspersed with the many and arduous duties connected with tending and training children.

Then we remember that the conditions surrounding all this toil are often such as to make it of necessity the hardest possible. No cistern, the well a long distance from the house, the fuel, cobs, which are piled up away out by the crib, no cellar or at most a very poor one. We also remember the difficulty with which help is oftentimes secured even when possible to pay wages, and when secured sometimes proving anything but efficient.

So taking all these things into consideration, there seems not one minute in these busy days for books, and if there had been, there were no books for the minutes—a weekly paper is at best all that one finds there for mental recreation. Music, song, the brightness of joyous leisure, all these have no place in the weary round of toil. Why do we paint so dark a picture? Because we know that in these perilous times there are as surely such farmers' homes, and that in large numbers as there are of the brighter, freer, fuller sort. The life of a farmer, one who himself farms—is not one of ease; and the life of the farmers' wife is often lacking in much that goes to make life worth living. What then? We surely would not show this darker side if we did not believe there is a possible brightening.

Of course there must be much hard work performed and economy exercised by those who wrest their living from the soil, especially at the present time and under existing conditions, but we believe that by forethought and careful planning by the farmer and his wife, a way and a time will be found for more and better recreation.

Many times from thoughtlessness—that want of thought which has wrought more harm than want of heart—the farmer fails to give the little time needed, which, without any or at most but little added expense, would make the surroundings of the necessary work so much handier that numberless steps would be saved.

Sometimes we see on farms where all the up-to-date labor-saving machinery is provided for the out of doors work the wife getting along with an old burnt out stove which will not bake properly, and with many other things just as trying to body and mind.

And again, when extra work is to be done on the farm, all the extra help is provided that is in any way necessary; but when the extra work is brought into the house, no matter now it may interfere with the regular routine of affairs which must be attended to, the farmer, with the unbounded confidence which a man often puts in his wife's ability to manage, thinks she'll bring it through somehow. We know it is much easier to secure help for the farm than for the house, but the latter is not generally impossible if sufficient effort is made.

Why are these things so? Sometimes because there is only about so much cash to spend for machinery and help, and when the farmer has possessed himself of what he thinks he must have and can not do without, there is nothing left for making the burdens of the wife lighter; and sometimes because there are people in this world who, when they have what they want and are themselves comfortable, never imagine but what every one else is, or ought to be, in the same condition.

The farmer's wife, for her part, must choose whether she will be the slave to ceaseless toil, or by omitting some of the things not absolutely necessary, have time for rest and recreation. We certainly need to stop from time to time and take our bearings and consider whether our work would not actually be improved by a little wholesome neglect, while we refresh body, mind and soul, with the particular kind of rest most needed at the time, whether it be a book, a nap, a visit with a friend, a short time spent with flowers out of doors or in the house, or whatever we feel will help us the most.

Let the farmer's wife know definitely what one woman's work is, and then content herself with being one woman instead of two or more.

Reduce that row of pies to a minimum if you do not decree its entire annihilation. We would be far better off without so much pie and cake as some busy housewives feel in duty bound to provide. Set before your family good, wholesome, nourishing food, well cooked and neatly served, but not of such a nature that decrees that the cook shall be offered up a perpetual oblation in the cooking. Make your childrens clothes plain and neat, they are easier to launder and can be made much more quickly; and even some of the plain clothes can be folded and laid away without ironing, just as your husband sometimes tells you to do. Is this heresy? No; for you will be better equipped for work by taking your recreation. You will accomplish more, not less, by being wise enough to replenish your own store of strength from time to time.

Take time for reading papers, books and magazines. Do I hear you say you can not afford them? In many homes where these articles are exceedingly few or entirely absent, the husband and father spends many more dollars in the course of a year for tobacco, if he does not use beer, too, than would furnish a good supply of reading matter for himself, wife and children. Is he not most woefully selfish, to say the least, in thus spending the family money entirely on himself, and for that, too, which not only does him no good, but which science says is a positive injury to the user?

Have at least a few well-grown plants in your house in the winter, and some in the yard in the summer time. The few moments daily that it takes for their necessary care you will find a welcome relief from more distasteful duties.

Because of the isolation of farm life in many sections of the country, social intercourse becomes one of the most pleasant forms of recreation.

We are told that European farmers live in villages where considerable social enjoyment is easily possible. The women meet at the village well, where they exchange words of pleasant greeting, and can frequently call at one another's homes. The school and church are also close at hand, so the monotony of daily life is somewhat modified, and there is a more or less joyous side which lightens their labor and privations; but in this country the houses are often far apart, and in the winter time, when there is more leisure for

social enjoyment than at other times of the year, the roads are frequently in an almost impassable condition, so the farmer's wife is denied many opportunities for recreation. Oh! that some one would arise with a feasible plan for making roads that would always be passable without being so expensive as to be too burdensome for the taxpayers.

But in the summer time our roads are often in fine condition. Then make your plans to sometimes take a ride in the cool of the evening when your husband goes to the village for the mail. You will find it a pleasant relaxation from the busy toil of the day.

But above all, have an interest in life, something which will keep the mind active. Read and think about what others are doing for the elevation of humanity. Keep in mind the social and industrial problems which are crowding to the front for solution, and live up to the principle that whatever else is omitted from life, there must not be omitted a little leisure for books and thought, and cultivate the faculty of making the best of everything that comes your way, so that in the good times coming, when husband and wife shall together decide to eliminate from the "have to haves" of life, all that shall tend to deteriorate the physical, moral, mental and spiritual well-being of themselves and family, there shall be a larger and fuller contentment with what may be made the happiest, purest and most independent life in the world.

FLOWERS ON THE FARM.

By Mrs. Lizzie A. Hawley, Gardner, Ill. Read before the Grundy County Farmers' Institute.

Now, the words country home, have not only a pleasant but a restful sound, and the scene presented to the mind's eye of the hearer is not alone of sketches of prairie pasture and hay-land alternating with plowed fields and patches of waving grain, a farm house erected as a matter of convenience (but utterly devoid of all convenience), with barns and outbuildings built merely as a shelter, and if painted—the better to preserve their lasting qualities—bare, broad and simple, with no inward or outward beauty and little cheerfulness except the sunshine. Our grandfathers and grandmothers had a hard battle to fight and no time to think about appearance, but now all this is changed, owing partly to the advent of machinery which enables the farmer to do so much of his work by proxy, with railroads running through or near every farm, and a market almost at his door, with marvels and wonders cheap, and the farmer finds more time, and with time comes inclination to consider crops, cattle and orchards and the clearing, improving and beautifying of the grounds, the buildings, etc. In too many instances the average country home has been considered merely as an abiding place or a place to stay, not live, while the occupants bend all their energies to the task of accumulating a sufficiency for that remote but indefinite time when they can remove to some town where they can set up a modern establishment and enjoy life, the goal too often being reached only in time to dedicate the same with that saddest of all services—a funeral, and the God-given opportunities of a lifetime are lost and the family have been deprived of years of intellectual growth and culture, blind to the works of the Divine Artist and the nature which should have been elevated by contact and association with his natural surroundings has been so suppressed with the one thought that only when certain conditions of life are reached that he can live and enjoy, and are all their life homeless, because one can never be entirely at home where they do not enjoy themselves. One of the best signs of the times is a growing regard for home adornment. Practical considerations of simple comfort or show have long received too exclusive attention; but as we settle down more and more into a mature nation, the pleasantness of home gains in importance. In other words, our homes are becoming more characteristic, because we are learning duly to esteem and study them. They picture more truly the mind of the occupants as owners, because the occupants as owners are becoming more truly their architects and creators. To follow where others lead and an awakened but vague enthusiasm, rather than natural love or taste for adornment, may be the motive, but they are not altogether deplorable and should

be encouraged, for it is not making our houses homelike, refined and pleasant, elevating the taste, improving the manners and creating a love for the beautiful in life and character as well as nature, which engenders a feeling of gratitude to the Giver, thereby stimulating us to greater usefulness and activity in all good works.

Farmers' wives and daughters are a stay-at-home class, yes, and farmers and farmers' sons, too, we venture to say, spend more time in their homes than the average man, and consequently are more liable to be impressed with their surroundings. (It is woman's mission to make the interior of the home beautiful and comfortable, and to do this it is our duty to gather around us as much real beauty as our means and industry will permit, and what is more available and more beautiful than flowers. They invest home with an interest that nothing else can supply. Flowers can not be monopolized; the poor can have them as well as the rich. Of all luxuries they are the cheapest and most at hand. It does not require much of an education to love and appreciate them, and I know of no condition in life from which they should be excluded. They tend to give a taste for the best and a distaste for the worst. Flowers educate, refine and elevate in even a greater proportion than good books and pictures, because they are more easily attained and digested. I have known a few persons who did not like music, but I have never known one who did not care for flowers. A man may have many vices, yet if he has a love for flowers and can take pleasure in their care and cultivation, there is something still left in him to act on for good, something which can love simplicity and truth. A striking instance of this came to me some time since, when an acquaintance, one of those unfortunates in whom the love of strong drink would have seemed to have swallowed up all the finer instincts of his nature and whose face was a good illustration of the effects of the saloon system, having moved to a different farm where there was a large number of hardy perennial shrubs and plants, when I asked him how he liked his new home, answered: "Beautiful! Beautiful! its all roses and posies, and I am just as happy as though I was in God's pocket." To take the most comfort with flowers they should be so managed that they will not become a tax upon the strength and time, and to do this we must select those which will give the best results with the least care and find out how they live naturally. To begin with, don't have too great a number or variety, unless you have more room and time than the average home-keeper. Better have a few healthy, constantly blooming, than many scraggly, sickly looking ones. Nothing can rival a vase of fresh blossoms or a plant of blooming sweetness, which if one is content to have a few well chosen plants, we may have about us at all times. Among which I do not know of anything that will give more unbounded satisfaction than a pot or several pots of winter blooming oxalis. Fuchsias sometimes literally bloom themselves to death, and are easily cultivated. There is nothing that grows in the window with as much ease and naturalness as verbenas, and they will fill the room with their fragrance; chrysanthemums, if brought indoors and the roots kept wet, will reward one with a mass of blossoms until Christmas; the "lobster cactus" never fails to do its whole duty as a winter bloomer; begonnias, of which there are a great variety; carnations, geraniums, the coleus, hyacinths, calla lily and foliage plants, that are nearly as beautiful as the flowers themselves, all of which are easily grown, the most essential element to their full development being sunshine, though there are many of our choicest plants that thrive best in the shade, so that if you have no sunny window you need not be deprived of the pleasure of growing plants. Many foliage plants and climbers can be grown as successfully in a shady window as in a sunny one. The white wax begonia, the rose begonia, fuchsias, primroses, calla lily, lily of the valley, the pansy and the violet will grow and blossom in the shade. No matter how homely and commonplace the home and surroundings may be, a little labor, with a few trees, shrubs, vines and plants tastefully arranged, will make it picturesque and attractive. Home art should not confine itself within doors, but should exert its influence on the immediate neighborhood of the house, and this should be man's domain, and he should be the landscape artist, though if he is any like the average man he will succeed in enlisting all of the women of the household to his aid.

Some of the most delightful hours of home life are spent on the piazza or lawn, and how restful and satisfying if one can look out and around upon a vista of beauty. "A thing of beauty is a joy forever." It is a pleasant hospitality that offers attractions on the lawn to the passerby. It seems to me that the greatest obstacle in the way of beautifying the grounds around our homes is that one do not realize the importance of the benefits to be derived from the same and the pleasure found in the contemplation, study and labor in this direction, with the quiet delights at the results. "Nature holds in reserve many delights which she lets us earn, as children do rewards and praise."

We must first learn, then enjoy; for as soon as we begin to know something of the plants and shrubs, that which perhaps once seemed dull is filled with new interests and pleasure. The farmer should be the true naturalist; the book in which it is all written is before him open all the time. Contact with the soil and the elements, watching the clouds and the weather; his privacies with nature, birds and plants, and his close acquaintance with the heart and virtue of the world; and how sweet and wholesome all this knowledge is. We can not, of course, properly treat of the habits of plants nor the rules that govern their employment, but will try to set forth a few suggestions (and leave the arrangement for the exhibition of individual taste), which suggestions can be adopted and practically carried out by every farm owner in this county with very little expense, after the first year none at all scarcely. First, in regard to the treatment of surfaces, we would advise in every case possible that they be left in their natural state, making inequalities of surface a feature of the grounds, affording means of varying and increasing effects and saving expense and labor. One of the most important considerations is the disposition of shrubbery and trees in a way that will secure broad open spaces of turf. Groups of shrubbery and trees should be arranged on the more prominent curves of walks, about entrance gates or on the outer boundaries. Trees and shrubs should be pruned, generally in the winter, and this operation should consist in thinning out, restraining and renewing, not shearing. Curves of walks and drives should be easy and flowing. There are so many inducements for planting a few trees around our dwelling places that it seems strange that so many homes are without them, for besides the healthful influence of trees they shelter from the high winds and shield us from the hot sun. As to the kind of trees, those best adapted to the soil, etc., but use evergreens sparingly and by themselves; do not mix evergreen and deciduous trees. Of shrubs, the following stand the test for hardiness in our climate: Snowball, lilacs, honeysuckle, spiraea, syringia, barberry, mowberry, flowering almond, hydrangea and many kinds of roses. Fences should be screened more or less with shrubbery; hedges are not ornamental unless well kept, and to do that requires too much time and labor. Too much can not be urged in favor of the cultivation of flowers on the farm. I have somewhere read "That no man receives the true culture of a man in whom the sensibility to the beautiful is not cherished;" and by so doing we not only add to our own culture, but educate our children to a love of the beautiful. Would not children reared amid such surroundings grow up more gentle, tender and loving, as well as obedient? Would it not make the home dearer to all its inmates, thereby fostering a love of farm life and perhaps prevent that growing distaste for the country and the farm, and that anxious looking to the town and its ways and waiting for a chance to flee thither, which so many of our young people are showing. A bed of flowers here and there would require little care. There are annuals so easy grown that no one should be without them, among which are our prettiest flowers, and it is a pity so many of them are discarded because they are old-fashioned. Always get the mixed colors, as in that way you can get a greater variety for the same price. There are balsams, zinnias, petunias, marigolds, sweet peas, nasturtiums, larkspur, sweet alysum, phlox, portulacaeas, pinks and the dear little forget-me-nots. It is not always the most expensive varieties from which the best results are obtained. A pansy bed in some location sheltered from the midday and afternoon sun will repay any one who cultivates it. Those who love flowers but have little time to devote to their culture should plant summer flowering bulbs and hardy perennials; if a variety are planted the beds will be bright with sweet blossoms from early spring until frost. Nothing is prettier than a well-kept lawn with

a few beds of foliage plants and flowers. There are times, perhaps, when a mass of color, obtained by using many plants of one kind, is desirable, but I think generally a variety of plants and methods of combination are prettier, as, for instance, a few bright flowers of white, red blue or yellow will have a better effect dispersed here and there about the grounds than in one great mass. Introduce them so that by means of their different natures there will be always during the season some bright ones. The floral adornment of the exterior of country homes rightfully demands and should receive increased attention. It is improvement of taste in the same line as that for the decoration of interiors and they both form important elements of home life. Unfortunately, too many people have a way of regarding such work as requiring greater skill than is actually the case. It is really less difficult and expensive in proportion to the results than most other forms of home art. When our homes and surroundings are so created as to awaken a love for the beautiful in nature, art and literature, and arouse an enthusiasm for high and better ideals of life, nobler aspirations, which shall result in deeds worthy of our highest manhood and womanhood, then will the farm and farm life be appreciated by our people, and we shall cease longing for the more exciting pursuits and the ways and fashions of the town. It has been said: "Blessed is he whose youth is spent upon the farm;" but more blessed is he whose whole home life, under proper conditions, is lived out on a farm. The farmer has the healthiest, most sane and natural occupation and ought to find life sweeter, if less highly seasoned, than any other. He alone, strictly speaking, has a home, for how can a man take root and thrive without land. How many ties, how many resources he has; his friendship with his cattle, his team, his dog, his trees, the satisfaction of his growing crops, in his improved fields, his intimacy with nature, his coöperation with the clouds, the sun, the seasons, heat, mud, rain and frost. Farming will take the various social distempers out of a man, which the city and artificial life breed, and direct and loving contact with the soil draws out the poison. It teaches him patience and reverence and restores the proper tone to his system. Cling to the farm, make much of it, bestow your heart and your brain upon it, beautify it by setting out trees and shrubs, cultivate flowers and a well-kept turf, and you will not only enhance the value of your property, but your own enjoyment of it.

POULTRY.

By Almon Brumback, Danforth, Ill. Read before the Iroquois County Farmers' Institute.

One of the most profitable branches of diversified farming is poultry raising. It is a branch of agriculture that has not received the attention other lines have. The question is often asked, "is there not an over-production of poultry and eggs?" At the present time the United States imports over \$3,000,000 worth of eggs annually. Statistics drawn from the United States Bureau in 1882 reveal the cash value of the produce of the country as follows: Cotton, \$410,000,000; dairy produce, \$254,000,000; wheat, \$488,000,000, and poultry and eggs, \$560,000,000. Since 1882 the poultry industry has been one of the most rapidly developing industries in the line of agriculture.

This proves that poultry raising is one of the most important industries of the country.

It is a business that can not be monopolized. A man, woman or child can engage in the raising of poultry without a large amount of capital. No one can, however, make a success until he is educated to all the details of the business.

It is a pleasant as well as a profitable branch of farming to one who enjoys feeding and watching the growth and habits of the flock. Like any other business, there are disappointments, and the highest hopes of to-day may to-morrow be dashed to the ground. These stumbling blocks that are sure to appear in the raising of young flocks can be avoided by those who have an understanding of the business, and by prevention or prompt action at the right moment, make success, instead of failure, the motto. The first important

step for the farmer is the selection of a good breed of fowls. The Plymouth Rock might be mentioned as a very desirable fowl for the farmer, as they have a combination of good qualities which make them a very popular breed. The absence of the heavy leg feathering (so characteristic of the Asiatic breeds) is a great advantage in wet or muddy weather, as the mass of feathers become damp, and in case of sudden changes of temperature, increases the chances of roup. The Plymouth Rock is a good forager and active. When dressed for market in a neat manner is certain to attract the buyer's attention.

The poultry house should be built facing the south, so it will get the benefit of the sun during the winter months. The aim should be to get as much floor space as possible, and the building only high enough for the comfort of the attendant. A low building is much easier to keep warm during the cold months, and the cost is not as great. With plenty of floor space it furnishes more scratching room for the fowls. The windows should be made so they will slide open and give a free circulation of air during the hot summer months; the roosts to be movable and all on a level, so as to prevent crowding of fowls, and not too great a distance from the ground, so as to prevent injury to a fowl by flying from high roosts. The nests should be arranged so each one is separate and movable.

Dirt makes the best and cheapest floor, raised some six or eight inches above the level of the ground. A board floor is not only expensive, but furnishes a harboring place for vermin, the poultryman's worst enemy. The house should be cleaned and swept every week, and if oftener the better, for cleanliness is absolutely essential to success, as disease and loss will thereby be avoided.

A supply of road dust, put up during the summer months, will be found to be very valuable for dust baths for the fowls, and to scatter about the poultry house after cleaning. A small amount of the dust will go a long way in its use.

One advantage of poultry, two crops can be raised on the same land—fruit and poultry, with a benefit to both.

The fowls keep down the insect life that destroys the fruit, and keep up the fertility of soil, while the trees in turn furnish shade. The hens take a part which could not be sold, and supply the farmer daily with eggs which have a cash value. Perhaps nothing raised on the farm is so free from the credit system as eggs.

When the corn crop is planted, the returns do not come in until the next fall, many months intervening; but the income from the eggs are soon. Many luxuries on the farmer's table are procured from these cash sales, which make the hens indispensable on the farm, and they are more capable of providing for themselves than any other stock.

For the raising of young chickens, a yard enclosed with wire netting or lath is a necessity on every farm for the good growth of the young poultry. It can not be made too large, and if it contains a good sod it is all the more desirable. It should be so situated that in case of a sudden rain there will be no danger of it becoming flooded. In this yard the young chicks and hens should be kept in coops until several days old, or old enough to go off on foraging expeditions without fatiguing the chickens too much, by letting them out for a short time at first and extending the time.

The floorless coops are very satisfactory during periods when the ground is dry, as they are easily cleaned by removing them to a fresh bit of ground every other day.

But if the ground is damp and cold a floor is necessary, as dampness is fatal to young chickens, more so than cold. A young chicken's necessities are warmth, light, pure air, clean water, a variety of food, and clean quarters.

The feeding crate, which needs no description, is a good arrangement to give the younger fowls better feeding advantages than those of a larger size.

Turkey raising is another very profitable branch of poultry raising. The Bronze turkey is probably the hardiest and reaches the largest size of any of the numerous breeds. A young turkey is a very hard bird to raise: good care and good fare is what is necessary to raise them to maturity.

In feeding them some patience is required. At times they will eat a little, or any thing that is given them, and at others refuse every morsel offered. They can not thrive except on a varied diet, and one which is very nutritious, owing to the fact that they feather very rapidly, and the drain on the system is such that the omission of a single meal may prove fatal. They should be fed five or six times a day during the early period of their lives, and they must never become wet, as the slightest dampness is against their growth, if not fatal.

After the first three months a turkey should cost but little. There is no class of poultry that pays better, even with the heavy loss of young. They search everywhere for food, and refuse grain in the stubble fields, seeds, worms and all kinds of insects are readily eaten. They are at work from morning until night. It must indeed be a lean land where a turkey comes up at night with an empty crop.

When the snow comes, however, the turkeys must be fed, the gobblers to be fattened and sold for the holiday trade, while the hens can usually be kept for the rise of price during the February market. Until a turkey "shoots the red," which usually happens when they are about eleven weeks old, they will be tender and require constant care; but after they pass this critical stage they become the hardiest of all birds, being capable of enduring all kinds of weather and looking after their wants unaided. They should be early taught to come up every evening for a meal, to prevent straying.

After the successful rearing of the fowls, the marketing is the last important step. The higher quotations of our city markets are only for the best quality of stock. No matter how or to whom poultry may be shipped, everything depends on the quality. The quality is governed by the breed and the conditions under which the fowls have been kept, as well as the manner in which they reach the market. All the prejudices and preferences of buyers must be considered. There are no two markets alike and each calls for an article prepared in a little different manner.

In killing poultry it is your duty to be as humane as possible. It should be a point not to inflict the slightest cruelty on the poor fowls that we select for slaughter. There is something ungrateful in sacrificing a hen that has done her part in filling the egg basket, and she at least deserves humane treatment when her existence is about to be ended.

There is but one thing left, that is the recognition of the poultry industry by the State Experimental Stations and the Agricultural Department at Washington. The influences are great that these powerful agencies can give to poultry by prompt recognition. Why should we have all these bulletins on insects and grains, when the American hen is forgotten? Why all about the market value of beef and mutton, when the demand is for more poultry and eggs? It is a sad mistake, this overlooking the American hen, while we are importing eggs every year, when the money could be placed in the hands of farmers.

PREPARATION OF FRUITS.

Read before the Jersey County Farmers' Institute by Alice Riehl, Alton.

In preparing fruit or anything for the table, it should be the housekeeper's ambition to have as much change as possible, and if the writer could feel that she had given any lady an idea towards the accomplishment of her efforts in this direction, she would feel herself amply compensated for time and thought spent in the preparation of this paper.

People tire of eating the same thing always cooked in the same way. There can be little doubt that many women do not realize this, nor do they appreciate as they should, the value of fruits as an article of our diet, and do therefore not consider it worth their time to learn in how many different ways it may be cooked to make it delicious to the palate, to say nothing of its virtues as a means of ornamentation—for next to a vase of lovely flowers on the table, what is more beautiful than a dish lined with grape leaves, then piled high with the purple and white fruit of the vine, with here and there a blushing peach or golden pear to heighten the effect of color?

In their season there should always be a dish of fresh ripe berries on the table to be eaten with sugar and cream. Peaches and pears are excellent sliced and served in the same way when fully ripe. Blackberries, unless they are so ripe that the core is soft, are better if boiled slightly, with sugar to suit the taste and having the liquid thickened with corn starch. Canned blackberries may also be prepared in the same way in winter. Grapes and sour cherries, if intended for sauce, are also improved if allowed to boil after turning out of the can and thickened with corn starch. Of course the grape seeds should be removed before adding the thickening.

Peach cream makes a very delicious and cooling dessert for summer. This requires a very soft mellow free-stone peach, not too juicy, such as Early York, Stump and Oldmixon. The peaches are mashed into a pulp, adding sugar and cream and prepared in the freezer just as ice cream is made. Oranges, pine apples, bananas and lemons are also well adapted for making fruit ices, if those flavors are liked. The juices of the red and black raspberry can also be used in the same way.

Strawberries and red raspberries can be made into a delicious shortcake for dessert. A good recipe for a shortcake is to make a rich soft dough, as for doughnuts, and bake in tins. The berries should be mashed, sweetened and mixed with thick sweet cream, then spread between the cake, which should be cut open with a sharp knife while hot. It can be served either warm or cold.

All the berries, currants, apples and peaches in their raw or canned state may be used for pies; but it is not wise to use much pastry in the hot season. This is a fact which the prudent housekeeper will always keep in view. Pies, fritters, tarts and puddings made with fruit are all very good but are better in winter when we need a more nutritious diet.

For making jellies nearly all berries and fruits are better if taken before quite ripe. If taken thus the jelly will be of firmer mass and superior color than if the fruit is allowed to become fully ripe.

For variety or for improving the flavor we have found that to drop a tiny leaf of rose geranium into the hot juice for a minute after it has been poured into the mould and taken out again before the jelly has had time to cool it will give it a delightful flavor. For instance, if one is making apple or grape jelly, part of the glasses may be thus changed and the rest left the original flavor. Strawberries or red raspberries make a jelly of most excellent quality if mixed with currants. The currants serving to give body to the mass and the former fruit supplying the flavor.

It is a good time to strain off some of the juice of the different fruits while canning and keep in sealed bottles. There is nothing so good and refreshing as grape juice, red raspberry syrup and the strained juices of strawberries, currants, etc., for use in the sick room. These syrups are also very good to be used for pudding sauces, and there is nothing better than a bottle of grape juice to be used in mince meat instead of cider, which most people use. It gives a richer flavor and better color.

For peach and pear sweet pickle, we select fruit of a uniform size and take it before it is quite ripe, so that it will not break or mash in cooking. The best way to prevent pickle from falling to pieces is to carefully lift it out of the juice when the fruit is almost soft, and setting it aside until the syrup is of the required consistency, then putting the fruit back and boiled slowly till it has a rich darkened color, then it should be put in glass or stone ware as the vinegar would corrode the tin.

Yellow cling stone peaches with firm flesh and not too large are best for sweet pickle. The White Doyenne pear, on account of its productiveness, is often small in size and keeps its shape when cooked; for this reason we use them for sweet pickle. They are very attractive served in a glass dish with their dainty little stems, which are not removed in preparing.

Many people regard fruit as a luxury and use it only as such: but this is a mistake; we need fruit and it should be used freely not only put on the table occasionally "for company," but it should be used on the table in some form, for every meal in the day, every day in the year, if possible.

This is especially true for those who live in the city. The housewife should always see that there is fruit standing where everyone may have access to it. Everyone likes fruit, and why should we not have it in abundance? The craving which we all have for fruit is a natural one, which, when not gratified, is apt to lead to its substitute, the appetite for strong drink and tobacco. The liquor habit is the perverted taste for the natural fruit acids and if all housekeepers know this, and knowing, would act upon it, they could do much to prevent the growth of this great evil, and thus assist the temperance cause in uplifting and redeeming the human race.

THE ILLINOIS FARMER THEN AND NOW.

By Major E. A. Giller, White Hall, Ill. Read before the Jersey County Institute.

In writing an article on this subject I shall try to leave out the big "I" as much as possible and give you as near as I can an idea of the prevailing conditions of farm life in this section of country over half a century ago and try to call to mind the wonderful changes that have taken place since those early days.

At that time there were very few stoves for cooking purposes. An iron bar swung back and forth in the huge fire place, on which were hooks to hang the kettles in which the victuals were cooked. Some families had the old Dutch ovens in which the meat was placed and set on the hearthstone before the fire and thus roasted. A few had brick ovens in which they would at one time do a week's baking of bread. Pies and cakes, the modern range, and improved stoves, show the wonderful change that has taken place.

In those days the women spun the wool after having it carded, wove it into cloth and generally made their own garments,—there was very little money to buy store clothes. They also knit the stockings, mittens, socks, made the rag carpets, and often did the milking. Such generally was the condition of the women in the farm homes at that early date.

For recreation and amusement there was the annual camp meeting, the husking bee, apple parings, and the dances after the log rollings, brush cuttings, or barn raisings.

In such homes were raised the parents of those who are now enjoying the comforts of the modern improvements with which we are surrounded today.

At that time the improved implements now used on the farm were unknown. What was known as the diamond cast plow had just come into use and was a great improvement over the old wooden mold-board, for under favorable circumstances it would scour, and thus do much better work.

In raising a crop of corn the field was generally all plowed then marked off with a one-horse plow and was then ready for planting, which was usually done by one person with a horse and plow, marking off the ground, a boy or girl following and dropping the corn in the crotch and usually two men with hoes following and covering the corn. Ten acres was considered a good day's work for such a force. Then came the jumper which dispensed with the hoes. Next the marker, which enabled one hand to make three marks and thus lay off thirty acres per day. Then followed the hand planter dropping and covering two rows at once, and finally the Brown two-horse planter, which seemed to solve the corn-planting problem, the later splendid implements perfecting the machine by the addition of the sled attachment and the check rower making the machine almost perfect for planting corn.

The evolution of implements for cultivating the crop has been almost as great. The splendid plows, both riding and walking, and the various makes of cultivators have taken the place of the one or two horse plows, and the old-fashioned bull-tongue or shovel plow, which in those early days were thought so much of, are now curious relics of the past, and the young farmer of today would think the prospect slim of raising a crop if he had to use such implements.

Next my memory takes me back to the evolution of wheat raising and the handling of the crop. After plowing the ground the wheat was sown broadcast by hand and then harrowed in. The sickle had given place to the cradle; the cradlers were followed by the binders, and a shocker usually followed two or three binders. It was heavy, laborious work and the pay was usually the equivalent of the value of one bushel of wheat and board per day, which usually included lunch in the forenoon and afternoon with a liberal supply of whisky. Wheat harvest was anything but a bonanza for the women of the house. The crop at that time when marketed at Alton usually brought about three bits or thirty-seven and a half cents per bushel and thirty bushels made a load, and under favorable circumstances it took three days to make the trip. Of course when the farmer received \$11.25 for his load he felt like a millionaire. The wheat was also tramped out on the barn floor with horses or beat out with a flail,—the threshing machine had not yet made its appearance. A machine called a beater was first used by two young men of the prairie which beat off the wheat which was stored in the barns or in rail pens—straw, chaff and all—and winnowed or fanned out at leisure, then came the machine for cleaning and separating the wheat. Three hundred bushels a day was considered a good day's work with an eight-horse power and a full set of hands. Improvement followed improvement until we have the wonderful machine of today with a capacity, under favorable conditions, of from 1,500 to 2,000 bushels per day, cleaning the same ready for market and stacking the straw. The wheat drill too made its appearance, another great improvement, making the crop more certain and saving seed. The wheat of those early days was of varieties that were late in ripening, thus making it more liable to rust which frequently ruined the crop, thus blasting the farmer's prospects. Since that, earlier maturing, hardy varieties, with stiffer straw and yielding more to the acre, have been introduced, and instead of from twelve to twenty bushels per acre, from twenty to thirty bushels on ground properly prepared is the yield. The implements for harvesting the crop have likewise been on the up grade and the cradle is rarely used unless to save a few patches around stumps in land cleared from timber. The reaper, the self-rake, the dropper, the header, all considered wonderfully useful implements in their day, have given place to the almost perfect self-binder and bundle carrier of today. The evolution from the sickle and cradle to the machine of today is, to say the least, astonishing.

Let me next call your attention to the saving of the hay crop. In those early days the scythe, the rake and the hand-fork were the implements used. It took a good mower to down two acres of grass in a day and if the swaths were heavy they had to be shaken out with a fork then when cured were put in cock, then loaded usually on a frame fitted on top of a wagon-bed, then taken to the barn and frequently pitched over a high beam, with the mercury in the nineties. All this has been gradually changed. First came the clumsy horse rake, the man walking and tipping it up at the winrow, then the mower and the tedder and the sulky rake. Now we have the complete outfit of mower, tedder, loader and stacker, or if put in barns or sheds, horse hay forks of various kinds, which elevate the hay to any desired height where carriers take it along on iron roadways to almost any distance and there dump it. Under present circumstances there is very little risk compared with those early days in saving the crop while the saving in drudgery is very great. In those days timothy, red top and blue grass predominated; clover had not then gained the prominence it has since acquired and its value as a restorer of fertility to apparently worn out soils was unknown. I remember well that a body of land that had been reclaimed from the timber and been continually cropped with corn and wheat, had become apparently worthless.

The crops were so meagre that it did not pay to cultivate the ground; today, owing to the clover crops on the same, the land now produces heavy crops of both corn and wheat and is very valuable.

Tile draining had not then been introduced and our first experience in that line was with the mole ditch, an implement making a sort of mole hole being pulled through the ground by a horse hitched to a lever and turning a drum which wound up a rope attached to the implement. As long as the hole kept open it answered a good purpose, but the crawfish soon filled it up so that it proved a failure, merely paving the way for the present system of tile draining which has done so much to add to the value of the farms. The rich flat lands when thoroughly drained, and which in those early days were considered quite inferior, are today, other things being equal, far the most valuable. My own experience on one forty acres of flat rich land will give an idea of the benefits to be derived therefrom. One year in the late winter and spring I expended \$340 draining the same. It happened to be a very wet spring, but owing to the drains the water got off in a hurry and we raised sixty bushels of corn to the acre and the grounds were clean from weeds. My neighbor who had known the land from boyhood told me that he was satisfied that had not the land been drained I could not possibly have got over thirty bushels per acre with a splendid crop of weeds, for we could not have got onto the ground to tend it until the weeds had got the start. You can figure the difference it made in the income from the crop. We had 1200 bushels more corn off the field, which at 30c per bushel would be \$360. I had spent \$340 in draining it and the work was permanent, and I was ahead \$20 the first year, with the field comparatively free from weeds; it certainly was a good practical object lesson. The farmer who has land that needs draining that can possibly do it and yet fails to do so, stands in his own light if I am any judge. One mistake many of us made in the early days and that was the using of too small tile. When the ground was thoroughly soaked it took too long for the water to get off. When properly drained the sloughs and draws now dry out and are ready for cultivation before the higher ground.

The old Virginia rail fence enclosed the farms almost universally. They were followed by the osage orange hedge, which when properly cared for, I think superior to any other for an outside fence, adding beauty to the landscape without the danger of crippling so many horses as is too often the case with the cheaper though useful wire fences which are now in general use.

The log cabins of the first settlers were gradually giving way to brick and frame dwellings, although yet quite numerous. Tramps were unknown and the latch string generally hung outside the cabin door. It was customary too in those days to ask the guest to take a nip of something stronger than water; now it would be considered quite cheeky to do anything of the kind. There was not near the toleration either in politics or religion that there is at present. The Baptists seemed to think there was no hope for those who had not been immersed, and the whig looked askance at the democrat. What a wonderful change has taken place.

These are considered close times, and we are all rather familiar with them. My memory takes me back to the forties. I had worked on the prairies west of White Hall the winter and spring of '42 and '43 for seven dollars a month and board, feeding cattle and getting out saw logs. In the spring of '43 Robert Frost, a cousin of mine, who had been working with me at the same pay, together with Isaac McCollister, hired to Wm. McCollister, who owned what is now the Isaiah Totts farm, two and one-half miles west of White Hall, to work through harvest for eight dollars per month and board. They were both first class hands and both finally were financially very successful in life. Our employer's two boys had got through with their three months winter schooling and he could no longer afford to hire, so I started out to seek a new place. I valued myself very highly those days, for I thought if my friends got eight dollars a month I ought to have the same. I traveled all one day hunting work, meeting with no success until towards evening, when I called on Mr. Strang, who lived about three miles east of White Hall, and who I had heard wanted a hand. He seemed favorably impressed with my appearance, and offered me seven dollars per month to work for him during the summer. I wanted eight;

he would not give it, and we spilt on that. He got me to promise to give him the refusal if I could do no better. Alex Strang, his son, remembered well my trying to hire to his father near fifty-three years ago, from the peculiarity of my English clothes, which attracted his attention. I however got the eight dollars per month from Putnam Vedder, afterwards county clerk, who was waiting to see me when I got back to town, having heard that I wanted to hire, I agreeing to do some painting for him, but making farming my chief business. Remember that at that time wearing apparel was much more expensive, and the chances for a hired hand to save much of his wages was very slim, so that it seemed to be an up hill business to get a start in life for one who had to start at the bottom round of the ladder; and yet the percentage of those who succeeded in making headway and acquiring a competency was fully as great as in later years, if I am not very much mistaken.

In those days you could take your pick out of a farmer's herd of cows for seven or eight dollars; three year old steers were worth no more. Now, a person owning a decent milk cow would feel insulted if he or she was offered thirty dollars for the same. They would want forty or even fifty dollars if the cow was a choice one, and as for steers they are simply out of sight. One of our wide awake buyers offered James Stubblefield, one of our prominent farmers, eighteen dollars a head for spring calves, and not for breeding purposes at that, and he would not take it. How about horses? Bicycles and electricity had not begun their work; railroads had not invaded the west, and yet the very best horses did not sell for more than fifty dollars per head, and the inferior ones in proportion. Chester Swallow bought fat hogs at one and a half cents a pound. As late as the middle of the fifties, I sold 74 fat hogs twenty-one months old to Walker Neece and Ason Finly for three hundred and forty dollars, or a little over four and a half dollars a head. They drove them to Alton and lost money on them. At that time the neighbors generally joined together and drove their hogs to Alton, and there sold them. Alton was the porkopolis of this section at that time. It took about eight or nine days to make the trip, and sometimes the roads were horrible, and when a hog gave out we had to wade in the mud and load it in the wagon. I remember we had no rubber boots those days; all we had were very inferior cowhide stogies, which cost \$3.75 per pair. Better ones can be bought now for half the money. I know that I bought three pair the winter of '42 and '43, from Zebedee Lawson, in White Hall, and paid that price for them. Compare, if you please, those conditions with our present mode of marketing hogs,—the change indeed is very great, and the good old times we hear so often mentioned, to my mind, do not loom up so favorably.

Of course there were a few sheep, and plenty of dogs and wolves. There was plenty of game, chiefly deer, prairie chickens and squirrels, also plenty of opossums, coons and foxes.

We generally had a six months school, three in the winter and three in the spring and early summer. The teachers were paid by the patrons at a stated sum per scholar for the term, and usually boarded around. Fifteen dollars per month was about their average income in the winter, and some less in the summer. The older children were kept at home to assist their parents in the house or on the farm.

It was no unusual circumstance to find a large part of the family in most of the dwellings shaking with the ague in the fall season, or down with bilious fever, and the latter were generally brought to a close acquaintance with grim death before they took a turn for the better, and then they were generally salivated and almost in a fair condition for a set of false teeth, for those they had were usually in a very loose and shaky condition. It takes something more than bilious fever or ague to puzzle our physicians of the present time.

Taxes in those days were very light, and yet the government machinery ran apparently as smoothly if not more so than it does now. Timothy Ladd paid Jacob Fry, who was then sheriff in 1830, \$6.10 tax on 280 acres of land, and \$2.50 besides of a county levy, making altogether \$8.60. In 1848, when Ziah Morrow was sheriff, he paid \$17.35 on 810 acres, and \$9 on nine lots in Walkerville, making altogether \$26.35 on the whole. In less than fifty years

the taxes have increased at least fifteen fold, and there my friend is where there is a burden that if you choose you could make much lighter. We are paying altogether too much to run our county government, when we take into consideration the cost of the necessities of life. Of course, if we want to pay for the luxuries, we have a perfect right to do so.

I have often wondered what one of those old time farmers who passed in his cheeks half a century ago and went to interview St. Peter would think if he could see spread out upon the lawn the implements now considered necessary to run a farm of say 160 acres to advantage. In those days he would remember that the implements in use were a farm wagon, two two-horse plows, two one-horse plows, one harrow, a roller made out of a log, a spade, an ax, a shovel, two hand hay forks and a couple of hoes, a scythe and cradle, about completed the outfit. Occasionally there would be a broad-ax, a frow and a couple of iron wedges. Less than two hundred dollars would purchase the entire outfit. Today, he would behold at least two farm wagons with racks 16 feet long for hauling the hay and grain from the fields, a hay loader, corn crusher, self-binder, tedder, sulky rake, mower, two riding plows, two cultivators, one iron thirty disc roller, one disc harrow, one two-horse walking plow, one single horse plow, one harrow, one wheat drill, one grass seed sower, scoop shovel, spade, common shovel, hose harpoon hay fork and traveler, 150 feet of 2-inch rope, wind mill and tank, lawn mower, wheelbarrow or hand wagon, an up-to-date covered carriage, a sulky and perhaps a road cart, and if there is more than one young man in the family, each have a covered buggy. I must not omit the corn planter and check rower. Methinks that after looking at the modern outfit he would wonder how in the world he managed to make a living in those early days at farming; and yet it was done, and the sober, prudent and industrious farmer, starting with little or no means, managed to lay a little by for a rainy day. He would notice, too, quite a change indoors. Organs and pianos have taken the place of the loom, and spinning wheel and the sewing machine is in nearly every house. It would not be prudent to touch upon the money conditions at this time, for I might accidentally tread upon someone's toes. Suffice it to say, that a five-cent piece assumes the proportions of a cart wheel and would purchase a bushel of corn on Apple creek prairie by gathering it oneself. My employer, John King, who was feeding cattle, bought corn from the Kitchens and McBrides, living near where Rood-house now is, and had the same delivered in his cribs at 10 cents a bushel; that was in 1843. After that the wild cat banks sprang up all over the country and brought the most of us to grief, for in 1857 they all went by the board and the vast sums of money, or rather trash, in the hands of the people, became entirely worthless. A few sharp scoundrels feathered their nests, but it taught the people a lesson which I hope they will not soon forget.

But I must draw this article to a close, although but barely hinting at the conditions then prevailing among the farmers. The school, the church, and the road conditions would either of them furnish material for a paper long enough for an occasion like the present. I will therefore conclude by calling your attention to a few of the farming implements unknown to the farmer of those days, and which I consider almost indispensable to good modern farming. First, I will name the self-binder, which makes the work both outdoors and indoors so much lighter, the corn planter and check rower, which enables the farmer to plant the corn as fast as the ground is plowed and thus get ahead of the weeds, the wheat drill, the disc harrow, nor must I omit the iron disc roller, which ought to be on every farm: we bought the first one that was used in this section years and years ago, and it more than paid for itself every year, although it cost us \$45, and with a few repairs to the frame it is nearly as good as new today.

My friends, young progressive America is so far ahead of an old antiquated farmer like myself, who will soon have to pass in his cheeks and enter that state about which so much is said and so little known that they would most likely feel insulted were I to offer them a little advice. Taking the risk, however, I will say to the young farmer, if in debt get out as soon as you can and then keep out. Don't spend your money before you get it. Don't be ashamed of your calling; there is none more honorable. From your ranks spring the men who rule the nation, who are at the head of nearly all the great business

enterprises of the day. There is nothing more honorable than honest, manly work, and nothing more conducive to health and happiness.

Such were the men who smoothed the way
For those now on the stage,
Who have the chance to make their mark
In this progressive age.

Their opportunities are great,
If they improve their time,
And set their mark away up high,
And up the ladder climb.

But if they shirk, look out my friends,
The workers win the prize:
So join the throng of earnest men
And not the hoodlum boys.

The women of those early days,
It would be hard to beat;
Industrious, healthy, full of vim,
Their homes though rude were neat.

They fairly played their parts in life,
And bravely bore their share
Of burdens that in early days
The settlers had to bear.

The paper that I've read to you,
Calls forth from memory's store
Events and scenes, that I had thought,
I ne'er should think of more.

The early settlers that I knew,
Full fifty years ago,
Have mostly joined the mighty throng;
But few are left we know.

Each one had some peculiar trait
That memory calls to mind:
Methinks a more original lot,
It would be hard to find.

One trait they all in common had,
A mighty good one, too,
They all were honest, upright men,
And to their friends were true.

And if matrimonially inclined and determined to make farming your life calling, see to it that you do not make the mistake of choosing a mate who will be dissatisfied with farm life and be eternally nagging you until you are obliged to move to town, for, if I am any judge, unless you are full handed, living in town and making a success of farming in the country is an uphill business. But of all things be honest; let your word be as good as your bond; be sober and industrious; be independent; do your own thinking and not be a tail to anybody's kite. Live so that you will not be ashamed to look the greatest man or woman of the nation in the face, and my word for it, you will find life enjoyably and this world a pleasant place in which to stay.

I have finished, and thank you heartily for your kind attention.

CARE AND MANAGEMENT OF HOGS.

By H. F. Barr, Dakota, Ill., read before the Stephenson County Farmers' Institute.

Mark there is not another branch which receives as little thought among farmers as the swine industry; and we are safe in saying none is more remunerative. Therefore it should receive the most careful consideration of all engaged in agricultural pursuits.

We realize that those engaged in raising hogs for the market have not been compensated for their labor as they have desired throughout the past year. The prices have been very low, but can you name an industry in which this same difficulty has not existed? We have passed through a year of depression, and are still passing. To refresh our memories of the prices received for pork, allow me to quote some figures from the Chicago market.

In December, 1895, the prices ranged from \$3.35 to \$3.67, after the holidays January prices ranged from \$3.50 to \$4.30; February, \$3.95 to \$4.35; March, \$3.75 to \$4.17½. April followed with a decline, prices being \$3.30 to \$4.00; May, \$2.80 to \$3.60; June, \$2.75 to \$3.55; July, \$2.80 to \$3.60; August, \$2.55 to \$3.65; September, \$2.50 to \$3.40; October, \$2.45 to \$3.65; November, \$2.90 to \$3.50.

These are about the low and high figures for the year ending November, 1896, since which time there has been a slight tendency upward at times, then within a few days all gain would be lost. These prices are ruinously low indeed, but when we consider that prices for all farm products were very low, there is a great deal to reconcile the swine grower to the prices for his production.

Not only do we have to cope with low prices; we have great risks to run, disease is rife in the land, and the latter part of this season has not been an

exception, it has had full sway in the corn belt. Iowa in particular has suffered heavy losses, in which state it is estimated that of the six millions grown, two millions at the lowest estimate have died.

Were this the only point from which to view the benefits arising from the swine industries, we should have no reason to envy those who engage in it. In the face of these facts there is no reason why we should lose confidence in "piggy" as a money maker. Prices for pork have been low heretofore, as well as for other products, and have revived again; and we believe will recover once again, as the business of our country revives.

As for the disease difficulty, we are only reminded of the similar wave that swept our land a dozen years ago, caused a ruinous loss for that season, as many of you recollect, but not debarring those engaged in the business from reaping handsome profits in the years following.

If we are to abandon a line of business simply because it failed to bring large returns this year as compared with some other year, we had better quit farming as well as growing swine, and indeed we are at a loss for a line of business to which such a person might be introduced. I think there does not exist on the farm a more reliable money-maker than the hog. He has paid for more land, educated more farmers' sons and daughters, and filled the farmer's home with more of the comforts of life than any other of the many lines to which the farmer has turned his attention. If you have lost your swine by disease this year, don't let this deter you from doing that which you have done in other more prosperous seasons. Some one has said: The present condition of things might be improved upon by taking 40 or 50 per cent. of every man's hogs, instead of taking 100 per cent. of one man's and leaving the other go clear. My topic has been partially outlined for me; first let us notice:

How shall we tell an animal that will likely be a good brood sow? It is not exactly essential that the raiser of hogs for the market select animals from any of the so-called pure breeds, but it is decidedly to his advantage to do so. There are so many breeds from which to select that all tastes can be suited. We suppose, however, that all farmers of the northern states have kept pace with the rapid strides of progress and have long ere this abandoned "razor backs," "wind-splitters," compeelers and all such.

I was amused the other day by the description of the razor-back given by a party who had made a trip south. He said:

"The razor-back is a novelty to the northern man; he is possessed of many good qualities, very thin, well arched back, always stands well on his feet, body shaped much like a sunfish, or a pumpkin seed, is about two feet tall and about six inches thick, has usually a gray or sandy appearance, is very long from the shoulders to where the jowl ought to be. His nose is like some people's, very long, and in other people's business. He has a keen eye to business, and never overlooks an opportunity to get something for nothing. I was told that the way to determine when he was fat enough to kill was to have a person to seize him by the ears and lift him off his feet; if he balanced backward he was prime pork, but if he went over on his head to turn him loose. The whites favor this kind of hog in the south because he is hard to catch, and the railroad companies like him because when they run over one he don't grease the rails and impede the progress of trains. With cotolene for culinary purposes, the razor back is all right." But we are not harboring such stock, I trust.

Assuming that like begets like, the brood sow should be a good all round individual, with a kind and gentle disposition, strong and active; she should have a broad, heavy ham, wide across the loin, stout, straight legs set well apart; and above all she should have a large, round barrel. This is essential, as the vital organs, heart, lungs, stomach and liver, are contained therein; all requiring plenty of room that they may perform their proper functions, thus insuring constitution and vigor. She should have a smooth, glossy coat, a bright eye and carry a fine caudal appendage done up in a curl. These last are not requisite, but an index of health. She should have an easy gait. Avoid those having a wobbly, worm-fence movement; they were born tired and will always remain so.

We prefer aged sows to young ones. They can be kept on less food through the winter, and are better mothers, as has been proven. We do not discard the cow in our dairies that has proven herself valuable, but those that are lacking in milking qualities. Act likewise with reference to brood sows. Right here lies the main requisite to insure a nice bunch of porkers in the fall. It is well known that the best way to feed a litter of pigs is through the dam. I am inclined to think much of disease is due in part to the breeding from immature animals from year to year. If you have an animal known to be a profitable breeder keep her, and put the young, untried stock to market. Have one in my herd nine years old and am loth to part with her.

How shall we feed the brood sow through the winter? This is a point wherein we are all lame. We lack variety of food. Through force of habit, and because it is so much easier, we throw out corn for breakfast, dinner and supper. A food more heating and rich in fattening qualities could not be selected, leading to many ills to which swine are heir to, constipation, congestion, fever, etc. If old and young sows are kept, it is well to have them in separate yards at feeding time, as old ones will become too fat on food required to keep the gilts growing properly; and the young ones should be in better condition at farrowing time than old ones. If we could have a root cellar well filled with pumpkins, cabbage and roots of various kinds it would furnish a healthy diet which would save much grain as well as many dollars' worth of swine. But for those who do not have such food, oats can at the present prices be fed with profit. In short, feed a variety of grains, oats, barley, corn ground, to which add shorts, mix into a thick swill: a little ground oil cake added a few times a week, and an occasional feed of cooked potatoes, will be relished and quite beneficial. We should aim to give a bulky, succulent, healthy food. Have fed clover hay with satisfactory results. Try it and be convinced of its merits. It should be cut when the bloom is fresh and sweet. You will be surprised how the porkers will mulch it down.

Do not over feed: remember that "enough is enough" and too much is a "great plenty." Don't think your swine need feeding every time they squeal, for, like some people, they don't know when they have had enough.

There is a difference of opinion as to the condition of breeding stock. Some say poor, others moderately fat, and still others fat. I should say the second is the proper condition. In addition to grains and slops, let the animals have as large range as possible; let them have access to a pasture, for the hog is by nature a forager. Having done what we can as to feed, we ought not to fail to provide suitable sleeping apartments containing dry bedding. If due attention be paid to the winter diet, many pigs will be saved in the spring which otherwise will succumb to diseases which attack pigs in their early existence.

Care of the pigs is the next item to consider. And let me say right here, don't be in too much of a hurry to get the porkers to Chicago, and in the desire to see them start for that point kill half the crop and stunt the balance by overfeeding the dam. Feed her nothing till the pigs are 36 or 48 hours old, and then only thin slop; after a few days a little oats may be added, and foods easily digested, no corn till the pigs are several days old. When the pigs are two or three weeks old, they begin to eat a little and should have a trough in a separate apartment where the mother can not get to it in which a little sweet milk, soaked corn, or better still ground corn and oats should be placed. If any be left in trough it should not be permitted to sour. All feed should be sweet, (nature will tend to the souring process as required, and at the proper time,) this encouraging all the organs to perform their proper functions.

From this time the pigs should be kept constantly improving, being fed a variety of food to secure healthy, palatable pork. I think the man who can produce a pound of pork per day, per pig, in herd, has no reason to be dissatisfied with result.

I failed to state in proper place that pigs should be farrowed in March and April so that they be ready for market by November or December. I think there is not much gain by holding stock over winter, that they may become large. It seems to me that 400 pounds of pork can be produced within two hides with more profit and less risk than in one. If possible let pigs have the run of a clover pasture through the summer, provide plenty of fresh water, and keep yards clean, thus removing an inducement to disease to germinate.

I would advise every farmer to plant pumpkins. You will never know their value until you have fed them. They are cheap and can be grown with corn, thus adding value to every acre planted to that cereal.

I do not make a business of raising swine for market, and do not have tested theories with reference to feeding for market, but I think we ought to feed porkers to suit the demands of the market. If the taste of people requires lean meat, feed to produce it; if lard is wanted feed for that. It is not necessary that we change from one breed to another to produce either of these requirements, but the change should be in the feed; corn will produce the fat, and oats, barley, shorts and such food will produce the streak of lean.

Just a word with regard to disease. Don't think just as soon as an animal is found off feed in your herd that swine plague or so-called cholera is paying you a visit. Bear in mind that hogs have lungs, stomach, liver and other organs and are liable to many ills which attack other animals. It is a pretty well established fact that much of the so-called cholera is lung and typhoid fever. Act with judgment in reference to these things. Attend well to sanitary conditions and many of the diseases which often arise and become both contagious and infectious will not visit us. I am opposed to the practice of continual dopping with quack nostrums. Do not dose an animal with medicine when it is well. It will be time to dose when nature needs assistance. I repeat, keep drugs out of the food of your swine. There is, however, something which I place within reach of my swine, simply ashes and salt, air slacked lime. They will consume a great deal of this mixture. You have no doubt seen your hogs digging about stone walls, grinding small gravel. They do not do this for the sake of devouring a stone quarry, but for the lime contained in the wall.

Make occasionally a feed of charcoal. You need not buy it. Take a few baskets of cobs and pieces of wood and burn them in a heap; when well burnt, say till the heap is a red hot mass, cover with ground, or better still, grain of some kind. (I prefer oats.) This will give it a dry smother, which is better than to drown out fire with water.

Last, but not least, keep rings out of noses. If your hogs must wear rings, put them in their ears. Their noses were given them for a spade, that they might dig in the earth for things which instinct has taught them were for their good. They will find many times their own remedy for ailments.

This is a large subject, each part of which I have merely hinted at is a topic in itself, and might consume the whole time allotted for this subject.

There is much more that ought to be said with reference to this industry, and the more we study and put the result of that study into practice the more profitable will swine raising become. It is easier to preach than practice.

One may succeed for a time in this way in a manner, but if circumstances are favorable disease will play havoc and propagate rapidly.

HOW TO KEEP THE BOYS ON THE FARM.

Mrs. G. W. Shippy, McConnell, Ill. Read before the Stephenson County Farmers' Institute.

Human life has periods, and each period of a boys' life glides out and the other comes in in such a gradual manner that he becomes a man without a perceptible change to himself. The period of childhood is the happiest time in life, unless surroundings are not what they should be. This period of innocence, beauty and natural enjoyment is repeated in every generation, unless prevented by some unnatural cause. The sweetest pleasures are those of childhood; when the imagination is strong and the faith is perfect. It is

wrong teaching that misleads the innocent mind and causes it to err. His harmless, docile, truthful and absolute dependence endear the boy to every feeling heart.

Milton said:

The childhood shows the man
As morning shows the day.

Then let your boy have a bright childhood and he will lead a pleasant life. The habits which the boy gets in the years in which he is most easily impressed bind him as with bands of iron. Every day can be seen the mighty power of early training. The true secret of family government lies in the parents and not in the rules they make. Children will imitate. Consequently it is necessary for the parents to set good examples. It is generally thought that boys most naturally imitate their fathers; not so, many a boy learns indolence and indifference from his mother, who, if she were an active woman, capable and willing to perform her household duties, she very likely would see her actions imitated in this child-mirror. Then think of the father scolding his boy for smoking with a cigar in his own mouth. This is another reflection in this child-mirror. Or, like the intoxicated German who saw his red nose reflected in the mirror, smashed it to atoms, he unconsciously crushes all that is good and true in that otherwise noble young life. Then blame the boy for that which he has done. Purity, truth and love in the parents will beget a set of like virtues in the child. It is a vital matter, this of boys leaving the farm. Judging from the conditions of things on many farms, it appears that the reasons are not known by those most nearly concerned, the farmers themselves. It is of vital importance concerning not simply the family from which the boy goes, but society as well. The longing desire to mix with companions where he can feel the stir and bustle of life, even if the life has as hard work in it as the farm life, it gives him more chance to catch the spirit of the times. To know how to act and not do like the farmer's fifteen year old boy who was allowed to go to a city with a better informed comrade, who, when the noon hour came, being very hungry, his friend took him to the hotel for dinner, he never having dined at a hotel. When to his embarrassment the waiter rapidly repeated the usual bill of fare, he awkwardly said "potatoes." His friend was shocked and it took him some time to gain his equilibrium.

The boy longs for some of the stir and rush of life, and if the farm places are not brought nearer in touch with his inexpressible desires, we may expect him to seek for these pleasures elsewhere. The trouble at the root of this question seems to be the lack of getting the boy interested in his home, proud of it; and anxious to make it better and prettier. To have the land more productive and the stock in better condition. We can not expect the boy to make such an attempt when he has not the chance, or when the farmer himself never appears enthusiastic over his interests, nor ambitious to make his work first-class. Instead of seeing the father taking an earnest interest and pride in his farm business, the boy grows up on many a farm hearing continually the complaining assertion, "that farming doesn't pay." We who farm this way must not wonder at our boys' indifference and growing desire to get away from these existing conditions. He is not allowed any recreation. If he dares to ask for an evening party at home, if he is not outrightly reprovved for it, there will be a shower of excuses for not giving consent that drives all hope of ever having a good time at home from the heart that is compelled to go on in its longings until another place is found where he can give vent to his feelings. Parents, we wrong our boys if we say no when they ask to have a good time at home with their companions. There are too many joyless boyhoods to inculcate any great love for farming in the youthful minds. The boy needs at least occasional recreation.

The boy on the farm sees that the village and city boys have innocent fun and frolic that sweetens their whole lives. While on the farm it is work, work, work, without any change. He is waked in the morning to do the milking and to run errands. He plants the potatoes, then, because he can do it, he is required to hoe up the weeds, which by proper horse cultivation, would not put in an appearance. In the evening he must get in the cows

again. In this way he is sent to do a hundred different things because he is young and of course should not get tired. When he gets big enough to hold the plow handles, he is fitted out with the oldest plug team on the place and an old plow, and he starts out in a new field, feeling that he is almost a man, but, to his consternation, he finds that the plow is bound to run along on the top of the ground, and every round he has to struggle to get the plow around at the four turning points. After he has made half a dozen rounds he finds that he is not nearly a man, that he is tired enough to lie down and rest forever. But, no, he is asked to go on and on, and when night comes and he is allowed to go to bed and rest, his little legs pain him so he cries instead of sleeping, but the next morning he must go to work, for it will not seem so hard when he once gets used to it. Then, when he has finished his plowing, the drag is brought out, and he is put to walking over the soft plowed ground until he thinks it almost impossible to take another step, and all this time the father is indifferently riding over the country looking after his interests. Then when the time comes to gather in the golden harvest, the boy of course is there to gather up the sheaves. When the men take rest he is sent for fresh water, and when he gets back the men are rested and, after drinking, the work is again resumed, without a thought that the boy too might be tired.

The boy has now reached the age when he is neither a boy nor a man. Now what? This is the critical time. He is no longer a child, with childish thoughts. He feels a longing desire for liberty. He does not want to be compelled to go to his father, and, like a beggar, ask him for a little spending money, and in the hope of getting a dollar, he probably receives fifty cents or likely nothing at all. He is compelled to wear shabby clothes that are a disgrace to the farmer's calling. He has a sense of pride that makes him feel very uncomfortable when he is not as well dressed as his companions with whom he wishes to associate. He is not consulted in the choice of a new suit of clothes—for which he worked all summer—and very likely it is coarse and undesirable ("but good enough"), which he receives in pain instead of pleasure. He has a natural independence that revolts against such treatment. How can we expect the boys to remain with us under such treatment? The grit is to be admired in the boy who leaves the farm under such conditions.

Now, right here, can we not see what should be done to keep the boy on the farm? Give him a chance to do something for himself. He has now learned to farm. Let him put out a field of corn, exclusively his own, then give him some hogs to fatten with his corn, and as he has now reached the age when he is old enough to begin to do business, let him attend to the selling and investing his money. You will probably be surprised to find in the boy better business qualities developing than his father ever showed. And he will go on making money on the same farm where the father could not make farming pay; where success meets him on every hand, and where he will be able to give his father a life of comfort and luxury in his old age.

Although success in life is largely due to circumstances, it can be largely guided by the individual's grit, perseverance, industry, energy and ambition. Many boys plod along in the payless ways of those before them, just because they have not the ambition and energy to get out of the old ruts. A prosperous farmer is a good business man, as well as the successful banker, as he understands his business and makes it pay.

We look upon Franklin with pride and teach his maxims to our boys, because he made the lightning useful to man. Edison is regarded as a living wonder for having still further increased the use of this unseen motive power. But placed in the parent's hands, is an element a thousand times more destructive than lightning, when not controlled, but ten thousand times more productive of the good and beautiful if rightly developed. And that element is the boys. How to rear the boys is a question that often puzzles good parents. To restrict too little is a bad plan; too much restriction is often worse. A little creek running along will keep pure. If it be dammed up, it soon becomes foul. Innocent and healthful sports are essential to a boy's moral and physical welfare. But he must be educated to a strength to resist when pleasures are not honorable. His associates must be regulated. Nowhere can this be more easily done than on the farm. Healthful occupation is the salvation of

the boys. It is easy to work in the country, where everybody works. What drives our boys from the farm is over-work. By over-work the boy learns to dislike work, and will shirk it when he gets a chance. He learns to be dishonest with his parents, and almost with himself, while honesty, industry and economy are the nuclei around which gather prosperity. These are qualities which must be developed in the boy for whom we wish to make life a success. He must learn that without industry, economy and self-control he can not safely be entrusted with wealth. To industry and economy add self-reliance, and you will have a boy developed into a business man that will keep at the helm and successfully steer his life ship.

A boy's talents are never fully brought out until he is thrown to some extent upon his own resources, therefore it can be plainly seen that he should be given a chance to become interested in the farm work. Let him feel as if he were a partner in the income, and note the difference with which he takes hold to do something. The father should remember he, too, was once a boy. How he was pained when he was treated unkindly. So, if you would keep the boys on the farm, treat them well. To have a good home influence is the very best means of keeping the boys there. To have this, the father, as well as the mother, must set a good example. With a good home influence, if he should be better fitted for some other vocation, the boy will leave the farm home with the deepest affection, in sacred memory, for the place of his childhood, which may be expressed in these lines:

Oh! the place of my childhood,
How it comes back when I roam,
To my memory so sweet,
When I think of the farm home.

Oh! the pleasant times I recall,
With the dear old horse we called Bill;
How we used to hitch him and drive,
Or ride him down to the mill.

And how in my mind I can see
The good rich butter and cream,
And the big white rooster, that crowing,
Waked me from my morning's dream.

There is no dearer spot to me on earth,
Than this dear old home on the farm,
Where we used to play in frolic and fun,
Away from all danger and harm.

Some may think the city's the place,
But give me the farm, the dear old spot,
With father and mother so kind,
And I'll be content with my lot.

Boys need encouragement, some little reward for making good efforts or for things well done. Little birthday parties at home, to which they are allowed to invite their neighbor playmates, with liberties for proper amusements, make a red-letter day to be always remembered. Parents should ever strive to give their children a pleasant childhood. How many boys hunger for a loving word or a kiss? If such boys could have an half hour with their parents in the evening, to talk over their joys and sorrows, to have a good-night kiss or say "good night" before going to sleep it would brighten their whole lives and give them pleasant memories instead of sad ones, which naturally create discontent in the young minds. In this way the boys' confidence can be gained. So much is gained by having the boys' confidence. Praise your boys when they do a good act. So many parents seem to be actually afraid to give praise when it is deserved. How often boys, after having done something which they thought would particularly please, failed to get one word of appreciation, and were thereby compelled to feel that their well meant efforts were lost. This is enough to crush all that is good in anyone, let alone a boy. Then again he should be given every chance within means (or outside) for acquiring a good education, thereby fitting him for a high position if he should desire it, and become a useful member of society. If he should wish to remain on the farm give him the requisite education whereby he may make farming a success. Don't harbor the old fogy notion that the farmer does not need a thorough mental training, for it is just the thing he needs. An agricultural training school should round off his education, so that he may come face to face with the identical problems that will be sure to confront him later on in life. A study of the soil, the elements of plant growth, stock, their development, food, etc. With such an education our boys would be better fitted for the business of farming and consequently have a better liking for it, and the boys leaving the farm would not be a subject to be talked about. Treat him well and let him feel welcome at home,

by allowing him the liberties a boy rightfully should have, then he will only gladly stay with you. Don't make him feel as if he were always on the identical spot where would like to be, for

"What can a boy do, and where can a boy stay,
 If he is always told to get out of the way?
 He can't sit here and he must not stand their;
 The cushions that cover that fine rocking chair
 Were put there, of course, to be seen and admired,
 A boy has no business to ever get tired.
 The beautiful roses and flowers that bloom
 On the floor of that darkened and delicate room
 Are not made to walk on, at least not by boys;
 The house is no place any way for their noise.
 Yet boys must walk somewhere; and what if their feet,
 Sent out of our houses, sent into the street,
 Should step around the corner and pause at the door
 Where other boys feet have often paused before;
 Should pass through the gateway of glittering light,
 Where jokes that are merry and songs that are bright,
 Ring out a warm welcome in flattering voice,
 And temptingly say "here's a place for the boys?"
 Ah, what if they should? What if your boy and mine
 Should cross o'er the threshold which marks out the line
 'Twixt virtue and vice, 'twixt pureness and sin,
 And leave all his innocent boyhood within?
 Oh, what if they should, because you and I,
 While the days and the months and the years hurry by,
 Are too busy with cares and with life's fleeting joys
 To make round our hearthstones a place for the boys?
 There's a place for the boys. They will find it somewhere;
 And if our homes are too daintily fair
 For the touch of their fingers, the tread of their feet,
 They'll find it, and find it alas, in the street,
 'Mid the gildings of sin and the glitter of vice;
 And with heartaches and longings we pay a dear price,
 For the getting of gain that our lifetime employs,
 If we fail to provide a place for the boys.
 A place for the boys, dear mother, I pray,
 As cares settle round our short earthly way,
 Don't let us forget, by our kind, loving deeds,
 To show we remember their pleasures and needs.
 Though our souls may be vexed with the problems of life
 And worn with besetments and toilings and strife.
 Our hearts will keep younger—your tired heart and mine—
 If we give them a place in their innermost shrine;
 And to our life's latest hour 'twill be one of our joys
 That we kept a sma'l corner—a place for the boys.

THE NEW FARMER.

By S. W. Mulnix, Damascus, Ill. Read before the Stephenson County Farmers' Institute.

As we realize our surroundings, and as we look back over the past we can see a vast difference between the farmer of today and the farmer of long ago. Things have changed, conditions have changed. Think of ourselves farming



S. W. MULNIX.

as our grandfathers farmed. They got along successfully in that day of the age, but their way of farming would not meet the demands of today. We are a progressive nation and we find it necessary for us to study to keep apace with the times. We not only meet in farmers' institutes for the simple reason of endeavoring to learn or teach how to raise more oats to the acre, better corn and larger hogs, etc. This is of the least importance. In days gone by it was considered that any fool could farm; that all that was required was muscle. And the farmers were looked upon as an inferior class of people, that only knew how to raise corn and feed hogs, etc. But that time has gone by; it is one of the theories of the past, and today the farmers rank among the superior class. They live better, enjoy more of life, and devote more time to study that the average business man. There is a new area in agriculture opening, an area full of limitless untried possibilities. Among other celebrities of the future as new men and new women, we hail

with enthusiasm the coming of Time's great masterpiece, the "new farmer." He comes with no blare of trumpets, no thunderous peal of arms, no crash of martial music, but silently and steadily he pervades the ranks of ignorance, and by the magic power of fair science one by one are transformed then transferred to higher positions of responsibility and usefulness. For with methodical precision he plans his great campaign, studies it in every detail, then with a prophet's far-seeing vision he marches on, at every step breaking down barriers of sloth, poverty and superstition. His appointed work lies in elevating and ennobling agricultural standards, and to this end he gratefully accepts help from all modern improvements. With electricity his docile steed, earth, air and water giving faithful service, all nature is his handmaiden and his plane of action embraces all fields. Literature, science and art hold from him no unexplored mysterious recesses. For the age of reason is near at hand. The new farmer will appreciate his calling; he will take pride in his avocation; he will be looked upon as a graceful, intelligent, well dressed, keen eyed business man, a man of physical beauty and strength. The new farmer will be emancipated from the monopolies, combinations and trusts, formed by politicians and moneyed sharks to crush and devour him as their prey in the mad struggle for power and precedence. The new farmer will be the peer of all men, and the great factors in his advancement are organization and coöperation. Farmers' institutes are great educators. By their help and guidance he rises toward higher spheres, mentally and morally. In the first place, it is an individual effort, and in the second place, it is a coöperative effort. The two go hand in hand. We must all study for ourselves, but when we want to move a large load we must all put our shoulders to the wheel and the load moves easily. One soldier does not amount to very much, and yet he is one that helps to make up the great and victorious army. As the old adage says, "United we stand and divided we fall." We must realize that we are the people; we are the ones that feed nations. We are in the

majority though our abodes are far apart. We are all working toward a common interest, and that is to raise the most produce with the least labor, to give our families the best education the land affords, and to make our homes attractive and comfortable. One of the great causes why so many young men go to the cities is that the home is unattractive. There is no reason why the farmer's home should not be attractive and comfortable. Good books should abound. On the reading table should be found the daily papers, magazines, farm and religious journals, as well as secular papers. Knowledge will reign supreme over farming's wide domain. The patrons of agriculture shall enjoy their ancient and indisputable heritage of sovereignty. Most wondrous indeed will the translation be, from adversity's lowly plain to the towering heights of happiness and prosperity.

The new farmer will be wiser than an old-time alchemist and at his skillful touch orchard and vineyard, furrow and fallow, flock and herd, shall yield to him their precious wealth. And finally, his possessions shall form the basis of the world's commutations. Socially he will extend toward all occupations the inherent hospitality of his nature. In the vast arena of political economy the patriotic new farmer will cast aside all partisanship and vote for the best men to represent and advocate their own unbiased principles. Thus, and only thus, can we secure a pure ballot, a just government and a happy, contented people.

The new farmer's life, whether before the public's scrutinizing gaze or in the blessed privacy of the home, will be spotless and upright, the outgrowth of higher, purer and better civilization. His nature will be gentle and patient, for it takes an abundance of patient work to bring him success. But above all he will be kind to all creatures entrusted to his care.

The farmer's wife, ever mindful of womanly duties, will strive always to become the true, faithful companion to her appreciative husband. He in turn will procure all possible conveniences and help to conduct a well ordered household. The pocketbook will not be "mine," but "ours," and she will feel entitled to an equal share of all that their united energies may earn. They will plan together. Happily she will have reached the golden mean between two great extremes—the one woman cringing in abject fear before a tyrannic husband, the other standing in awesome majesty, discordantly clamoring for woman's rights, commanding the one she should love and honor. The new farmer's wife will be to her husband the embodied ideal of wisdom and goodness, courage, endurance and hope, and as a reward she will realize the fullness of woman's supreme good—her husband's well placed trust and his loyal devotion.

The new farmer will never forget the little courtesies that add so much to life. He will be neatly attired and wear a good business suit when he goes to town, for he will have learned the value of self respect and for the time being will discard the ordinary working dress. Further, he will think and read. Magazines and newspapers will come weekly as welcome guests to his library table. He will avid, as far as possible, bringing hired help into the home, and when he does they will be good, reliable characters whom he can feel will not exert bad influence over his children's unformed minds.

The new farmer's home will be an attractive place, a home where luxury, art and culture shall abound and give its best gifts to aid the social, intellectual and moral advancement of the agriculturist—his wife, his sons and daughters.

The new farmer will be systematic. He will know if he is getting as much for his produce as the cost of production. He will not try to remember every little deal; he will keep a day book, also a ledger. At the end of the year he will know how much money he has taken in and how much paid out. He will also figure the interest on his capital invested and find if he is prospering or going into bankruptcy. The new farmer will not allow the commission men to take all his profits; he will be acquainted with the prices and do his own shipping. Also his own reading and thinking.

The new farmer will know something about law and science. He will feel his high calling and importance in the world. He will not look down on himself and then blame others for doing likewise. He will not entertain the idea

that a man can not become distinguished because he is a tiller of the soil, but he will have learned that it is one of the best places to develop a true, pure, intellectual manhood. He will realize it is the place where our great leaders have been reared; it is the place where our most eminent statesmen received the fundamental principles of their greatness.

The religion of the new farmer shall be purified of its cold formality, the distrust of sectarian powers, the disputes, the warefare and the bloodshed characteristic of the past. For religious thoughts are shaping themselves more and more each to the conviction that it is the spirit and not the word that is of the most importance. It is not the color of the banner but it is the truth inscribed thereon. Charity shall spread her white mantle over all the earth and a universal brotherly love shall prevail.

The new farmer shall have accomplished a grand work, fulfilled a great mission. He shall have exalted the field of his labors as a profession, sustained by capital and directed by intelligence. The atmosphere of his home will be so sweet and pure that its joys will seem as a foretaste of the glories of our eternal home. As the architect of all the fortunes of mankind, the new farmer will have laid the foundation, builded anew wisely and well the structure upon which the toiling millions rest their hopes of existence.

WHOLESOME WATER FOR HOME AND FARM.

By J. J. Hassett, M. D. Read before the Hamilton County Farmers' Institute.

In this locality, and especially in Hamilton county, we are lacking in that very essential and wholesome article necessary for health, both of man and beast—pure water. When we stop and think how much water we need each day, how much we use in the period of a month, and the various ways in which we use it, we naturally would conclude that the ways we obtain it should be more carefully selected and if possible a more pure water obtained. It is possible and is essential that every citizen should become interested in the subject of good water, both for himself, family and stock.

Did you ever think that water is the most necessary except air, for living beings, of anything in nature? Were it not for water we could have no existence. We require water for every tissue of the body; not one cell of the body of any individual in this house can exist without it.

Water when pure is colorless; is destitute of taste or smell, and is perfectly transparent. Now we come to the subject of "Wholesome Water for Farm and Home."

Modes of obtaining water for drinking purposes on the farm may be by boring wells until streams are reached, or by digging cisterns and walling them with either rock, brick or cement. These are the proper ways by which we can obtain water here, as we have no springs in this county. In selecting a place to dig a well or cistern great care must be exercised in placing it where there are no cess pools liable to drain into same. And here I wish to make a few remarks about slops and refuse being thrown out close around a well or cistern. I have noticed myself many places where this was done. There is nothing worse or more liable to affect the health of the family who use water from a well so surrounded. It is very important that the ground around a well should be kept perfectly clean, and that no slops of any kind be allowed to be thrown anywhere near. The ground should slope away from the well on every side so that all surface water will be carried off. If this is not possible you can avoid the danger of this by digging a trench about four feet wide all the way around and about three feet deep, fill with sand and gravel or charcoal, and this will purify all surface water liable to seep in. If you leave the well only a hole in the ground without any walling, and rain is the source of your supply, you have several things to be done before you can obtain good water, or as good as this way can make it for you. In the first place you must keep a good solid roof on your house, and if shingles or boards are green, do not let water into the cistern until they are well seasoned. If they are decayed and moss has accumulated on the boards, you stand the best chance to catch the germs of many diseases, for it is a decom-

position of the wood that causes this, and you have a form of animal or vegetable decay, consequently a home for the lurking of disease on your very houseposts.

Secondly. Use the charcoal as stated above for the filter.

Thirdly. You will be compelled to clean this well once each year and thoroughly wash out the bottom. Then I would say build a good fire in the bottom and let it burn for eight hours without any intermission. This will destroy all germs and will give you as fair a chance to escape from sickness with this kind of water supply as is possible. Of course I will describe the processes of filtering water from roofs further on, which should be done by all means.

But suppose now that we have our cisterns dug say 10 feet across and 15 feet deep, how will we provide for safe and good water, say if they are cemented and nothing can drain into this same well-protected cistern? As I have stated, our roofs must be good, solid and kept clean. Then our lead troughs around the house well painted on inside to insure against anything that might be in the tin. Then we should have a closed inlet from house to well, so no rats nor mice can get in same, and I believe this should be above the ground so that it may be examined.

Now we have come down to where we are about to let the water into our cistern. What and how to do this? The way recommended, and it is a good one, is to have a large reservoir in the side of cistern. This reservoir is made of well seasoned wood, or tiling will do, and is large enough to hold three barrels of water; it is perforated on both sides and bottom and filled with charcoal and sand; the water is now let in from the roof or lead troughs and allowed to enter the barrel or tile into our filter. Here the water undergoes a thorough sifting and passes out of barrel into the well and is now ready to be used. Change or clean filter four times yearly. All wells should be provided with a good pump, for by the action of the pump the water is put in motion and thereby enlivened or kept from getting stagnated. Another point that is mentioned by some writers on this subject is, that we get large boulders, enough of them to cover bottom of well, and by the action of the pump we to a certain extent agitate a tendency to produce a running water. In some large cities this is done through pipes that carry the direct water supply to the city's reservoir.

Now a word on stock water. All animals must have pure air, and consequently pure water is as essential to them as to man. The same laws physically that govern animals govern man. If the farmer can afford it, he should bore wells for his stock use. In this locality our supply is the pond or creek, and very often for the family also. Ponds are not the proper kind of water for anything except possibly for fowls to play in. All ponds when open catch all germs of disease; they are especially good harbingers for malarial trouble, and I have kept notes especially on diphtheria, and I find that 85 per cent. of our cases can be traced apparently to some old pond or sink hole. If I had my way I would replace all ponds with a good well, either dug or bored. The analysis of nearly all wells in this county of hard water are not the best for stock—they contain too many minerals, and therefore may develop in the horse or cow some bowel or kidney trouble, so it would be well for each farmer to have the water in stock wells analyzed if they are highly tainted with metallic tastes.

In conclusion I will read you the Doctor's description of "The Old Oaken Bucket, and the Contaminated Well," of which we all have read:

I.

"With what anguish of mind I remember my childhood,
Recalled in the light of a knowledge since gained;
The malarious farm, the wet, fungus-grown wild-wood,
The chills then contracted that since have remained,
The green covered duck-pond, the pig-sty close by it,
The ditch where the sour smelling house drainage fell;
The damp shaded dwelling, the foul barn yard nigh it,
But worse than all else was that terrible well,
And the old oaken bucket, the mold crusted bucket,
The moss covered bucket that hung in the well.

II

Just think of it! Moss on the vessel that lifted
 The water I drank in the days called to mind,
 Ere I knew what professors and scientists gifted
 In the water of wells by analysis find,
 The rotting wood fiber, the oxide of iron,
 The algæ, the frog of usual size,
 The water impure as the verses of Byron.
 Are things I remember with tears in my eyes,
 And to tell the sad truth—though I shudder to think it—
 I considered that water uncommonly clear:
 And often at noon, when I went there to drink it,
 I enjoyed it as much as I now enjoy beer.
 How ardent I siezed it with hands that were grimy,
 And quick to the mud-covered bottom it fell;
 Then soon with its nitrates and nitrites, and slimy
 With matter organic it rose from the well.
 How little I knew of the dread typhoid fever
 Which lurked in the water I ventured to drink,
 But since I've become a devoted believer
 In the teachings of science, I shudder to think.
 And now far removed from the scenes I'm describing,
 The story for warning to others I tell,
 As memory reverts to my youthful imbibing,
 And I gag at the thought of that horrible well,
 And the old oaken bucket, the fungus-grown bucket—
 In fact the slop bucket—that hung in the well."

LEVEL CULTIVATION.

By Ezekiel Hunsinger, read before the Hamilton County Farmers' Institute.

To the Farmers' Institute when convened in McLeansboro, Ill., March 5 and 6:

I am sorry, very sorry, that my health is such that I can not be with you. You have assigned me a subject, that of Level Cultivation for the conservation of soil moisture.

Now, this is a limb with many branches, or an animal with many heads. There are so many things so inseparably connected with it that makes it a difficult one.

To depend on dust much for a successful crop would be about on a similitude of laying a man down on a cold night without regard to what was under him, and then spreading a thin covering over him and expecting him to keep warm. That a covering of a material that is a non-conductor will arrest the escape of moisture is a philosophical fact, and that the water that falls on the earth and goes into the soil comes back to the air again, by capillary action, is also a fact; these being facts, the question with the farmer is, How best to retain that moisture in the soil for the use of the growing crops. This matter has been a subject of close inquiry with me for five or six years. My attention was first drawn to it by turning to shallow cultivation of corn to avoid root pruning. Have always pitied the man who plowed his corn the last time (laid it by) with a turning plow with two deep furrows in each corn row, making a high ridge against each row, which left two deep furrows or two ridges to each row, with three sides exposed to sun and air as if to dry all the moisture out of it in the least possible time was the thing desired. As soon as the double shovel plows come into use I adopted their use, especially in laying by corn. When the two-horse cultivator came in I used them, but my attention was drawn to the fact that the fine, well pulverized surface was, in time of drouth, far moister than the rough surface. The next advance in implements of cultivation was that of J. D. Tower Bros.' lever shallow cultivator, which I have used five or six years, which is a set of scrapers, four on each side of row with leveler to follow, but this cultivator is only well suited to later cultivation (one or two last workings). By the use of this implement I was thoroughly convinced that a finely pulverized, smooth surface retained moisture far better than an uneven or rough surface. I have now quit using the four shovel cultivator and use the Albion, which has spring teeth one and three quarter inches wide, six teeth on each side of row; the latter does well for first two cultivations, but to continue it longer raises the

row too much for me, but it is just what most of farmers want. One would think to see the array of farm implements we have that we need no more, but I have my mind on one more yet; that is an implement with numerous small teeth to be drawn by one horse with which to run through the corn after a hard rain when the corn is too big to admit the two-horse cultivator. We may have ever so fine a soil mulch, but a heavy rain will crust that surface and make a ready escape for moisture. I wrote to a manufacturer a few years ago on that subject, and he promised to give the matter attention, but nothing has come of it yet.

Now, I am aware of the fact that the mass of farmers could not think of hitching up and going into their corn to work again after they had, as they term it, lain it by, but to our sorrow we know it is a fact that the number of those who own their farms are fast dropping into the renter class and the latter recruiting the day labor class. The days of success of the slip-shod, go-easy farming are nearly passed. I am sorry that you asked me to write on this subject. Soil management is a subject in which all have yet much to learn, and the one thing I have learned is that it is a big subject and one of which my day will only see the dawn. I have striven to get some aid on the subject, and have to some extent succeeded. Will forward the same to your secretary who will read them to you. Some of what I send is pertaining to shallow cultivation. They are so nearly related if you are interested in one you will not tire of the other. I like to talk with farmers, not that I know something more than they do, but to ask them questions, and if they should ask me anything and I know anything about it I take pleasure in telling them, and as the most of the audience are farmers I will take the liberty of digressing from the subject assigned to me. Of course there are a few scientific teachers present, but they are laboring for our good, and will bear with our prattle with all the patience and apparent approval that a kind teacher would to his small pupils. Our professors in agriculture can give us scientific facts, theories; they are not of universal application to different soils and climates.

I will give now some of my personal experience in the management of my soil. I am an advocate of deep plowing, but there is some tact in getting to that. I once rented a neighbor's field that had never been deeply plowed, and I thought there was fertility there that had never been disturbed and I would bring it up. I broke it up as deep as the teams could draw it; result, nearly a failure. The next season another man made a good crop on the same land, but without following details. It will only do on clay soil to increase depth slowly, unless it is plowed in the fall and followed with corn the next season. To increase depth or turn under some fertilizing crops are the only inducements I have found to fall breaking for corn the next season. I have also tried dropping down four to six inches of an increased depth without apparent injury or benefit.

I am careful to maintain a rotation of crops, prominent in which is clover, and I find the use of commercial fertilizers quite a help in securing a stand of clover. When I plow for a corn crop I plow as deep as the land has ever been plowed, and deeper if I can, keep the harrow close after the breaking plow before the top dries out and makes clods; if I plow early enough, I harrow three times before I plant, then if not hindered by rain, harrow again before corn comes up, then follow up by good cultivation; if there is fertility in the soil a finely pulverized soil mulch will be available.

Respectfully submitted,

EZEKIEL HUNSINGER.

The following are papers that were read by the secretary as requested by Mr. Hunsinger at the close of his paper on Level Cultivation:

February 24, 1897.

Mr. Ezekiel Hunsinger, Burnt Prairie, Ill.:

DEAR SIR:—In reply to your inquiry as to the value of the method of cultivation sometimes called the "Campbell Method," I think that the experience in this State has been very clearly in favor of some such method of conserving the moisture which falls, but which often, under careless methods, gets away before it becomes of any use.

I am not able to say as to what has been done by the railroads, but understand that they are to give a good deal of attention to inquiry as to the value of the method, and as to experimenting with it, and I presume that their experience will be published, but that work does not come within the plans of this station, at this time, and so I do not know that any reports on that particular point will be issued in the near future. I presume that Mr. Campbell's paper, known as "Campbell's Soil Culture," will give full data, and you can learn of that by addressing the paper mentioned, at Sioux City, Iowa.

Yours very truly,

F. W. TAYLOR, *Secretary.*

LaFAYETTE, IND.. February 16, 1897.

Mr. Ezekiel Hunsinger, Burnt Prairie, Ill.:

DEAR SIR:—In reply to yours of the 15th inst., we have made no experiments that bear very directly upon the particular question you ask about: namely, level culture as a means of conserving moisture. Our soil is unfortunately of such a kind as to interfere materially with the success of experiments in this particular line. We have some data, however, which indicates clearly the advantage of level culture in connection with a thorough pulverization of the upper layers of soil as a means of conserving moisture. This question of the conservation of soil moisture is a large one and reaches out beyond the mere matter of tillage. In the first place, if the soil is compact drainage is the first step; subsoiling may, in some cases, be a profitable second step, as it opens up the soil so as to admit the water freely which is highly important, as our object should be to get the rain into the soil rather than off of it. Third, the soil should be filled with vegetable matter as a means of further increasing its power to hold moisture. Fourth the culture should be such as to give the crop complete possession of the soil, keep the field well blanketed with a layer of loosened earth and maintain the surface as level as possible. A level surface will expose less soil to the air and sun than an uneven surface, and hence this will tend to reduce the amount of evaporation directly from the soil. Frequent cultivation will maintain a mulch of loose earth which destroys the capillarity of the upper layer of the soil and thus further tends to conserve moisture.

If you want to get a somewhat elaborate and interesting work relating to this subject I suggest that you write to McMillan & Co. for a book on "The Soil," by King, which they publish. I think the price is one dollar.

Yours truly,

W. C. LATTI.

Purdue University, Agricultural Experiment Station. LaFayette, Ind.:

Shallow cultivation of corn has given better results than either medium or deep cultivation.

Shallow running corn cultivators have produced higher average yields than those which deeply stir the soil.

All the experiments with deep and shallow cultivation have been conducted upon a naturally drained, compact, dark soil, which had been plowed in spring at least eight inches deep. The yields for 1892 and the average yield for five years are shown in the table which follows:

YIELD FROM DEEP AND SHALLOW CULTIVATION.

Depth of Cultivation.	Bushels Per Acre.	
	1892.	Average.
About one inch.....	62.9	59.87
About two inches.....	62.8	55.38
About three inches.....	62.7	53.16

While the results are strongly in favor of shallow culture, it is not presumed that a stiff clay soil would respond so well to shallow cultivation as the dark soil of the station farm. It is confidently believed, however, that if the soil is deeply broken in the spring and properly filled with vegetable mold, it will not only prove unnecessary, but injurious, to cultivate any deeper than is required to counteract the packing effect of beating rains.

There can be little doubt that thousands of bushels of corn are lost annually by careless deep cultivation, which probably dissipates needed moisture and certainly breaks many of the corn roots and thereby prevents the full development of the crop.

From Mississippi Agricultural and Mechanical College Experiment Station:

DEEP AND SHALLOW CULTIVATION.

Comparisons of deep and shallow cultivation have been made during four years, and the results, with a single slight exception, have invariably been in favor of the more shallow work. In all of this work we have used alternate plots in the same fields, usually three plots for each plan of work, and all the plots each year were cultivated the same number of times and on the same days.

A great amount of similar work has been done at other stations, and in nearly every case the results secured have been the same as here. We have examined the records of 116 such tests made at thirteen different stations and find that sixty-one tests of deep cultivation gave an average yield of 34.9 bushels per acre, while fifty-five tests of shallow cultivation gave an average of 74.7 bushels, a difference of 9.8 bushels per acre, or more than 15 per cent. in favor of shallow cultivation. In only five cases out of the entire number did the deep culture show the better results. Corn is a plant which has a large number of long roots near the surface of the soil, and whenever the soil is disturbed so deeply as to cut the surface roots the plant is necessarily weakened by having its supply of nourishment decreased. A constant supply of food is just as necessary to the growing plant as to the growing animal, and cutting many of the roots when the plant is growing rapidly frequently gives the plant a check, from which it never fully recovers.

Such a uniformity of results secured from so large a number of tests at so many stations is not accidental, and during the last four years we have followed the shallow culture system for our general crop. The ground is plowed as deeply as possible before planting, but after the crop begins to grow the roots are disturbed as little as possible.

This experiment was made by the Wisconsin State Experiment Station:

EFFECTIVENESS OF THIN SOIL MULCHES.

Experiments have shown that very thin mulches exert an appreciable influence on the rate of surface evaporation. As results of trials it was found that in still air in stirring the soil to a depth of one half inch gave a daily evaporation per acre of 5.75 tons as against 4.52 tons when stirred to a depth of three fourths of an inch, while the undisturbed surface lost water at the rate of 6.24 tons daily. In the case of mulching with fine air dry soil, the results showed a loss of 4.54 tons per acre for a layer one-half an inch thick, but only 2.4 tons when the layer was three-fourths of an inch thick, as against a loss of 6.33 tons when the surface was not covered.

These figures bring into strong relief the great effectiveness of even a thin layer of fine dry soil in checking surface evaporation and serve to emphasize the importance of keeping soil in good tilth, and of using tools which will leave the surface blanketed with a fine even coat of soil.

F. H. KING, University of Wisconsin.

Agricultural Physics, page 121.

THE FARMER OF THE FUTURE.

By J. M. Hollingsworth, Ridge Farm, Ill. Read before the Edgar County Farmers' Institute.

The future begins tomorrow. Before it arrives I invite your attention to some questions which crowd upon the outlook of the farmer.

To the young man, and to many an old one, the question of the farm itself is very serious. Let us look at the conditions which prevailed at the taking of the last census.

In 1890 Great Britain and Ireland had (counting the entire area, which, of course includes much that is unfit for cultivation), 2 acres of land to each inhabitant. The United States had 35 acres per capita. In our own country New York State could give each person only 5 acres, while Wyoming could give 1,024 acres. Illinois could give $9\frac{1}{2}$ acres to each person within her borders. Let us look at the conditions in our own county. Twenty-five years ago there were miles of unfenced and uncultivated territory. Thousands of acres which now rank as the very best farming lands were then utterly unfit for cultivation. In 1894 there were only 12 sections which had not been subdivided. Twenty-five years in the future will see a reduction in individual ownership that would seem incredible twenty-five years ago.

These figures emphasize this thought: So far as we are concerned, the old patriarchal system, which has had its modern representation in southern plantations and western ranges, is ended. The desperate striving for all outdoors which has from time immemorial obtained among those who tended flocks and herds, and in a lesser degree among the tillers of the soil, must cease. It's no longer practical to buy all the land that joins you.

There is no greater enemy to modern agriculture than the man of considerable income who buys a farm or two every year, rents out the land for all he can squeeze out of his tenants, lets the buildings go to ruin, the fences to smash, and the fertility of the soil to zero. He says "the land will be there for the children when I am gone." I have known a few such men. Not one of them gives his children the benefit of an education according to his means. To a man they oppose public improvements. Selfishness is their creed and money their god.

The old pioneers did us a great favor by taking possession of the land. We are the children whose duty it is to improve and occupy that land. We read that the first man had given to him a garden and was instructed to dress it and keep it. There was no original provision that he was to trade it off or to run around and hunt a better location. We are located in the garden spot of the world. Let us make it our first and last thought to stay with it.

Right over there in the future, upon whose threshold we stand today, a quarter section will be a large farm. It's no use talking, new conditions are upon us. The old spreading house away back in the middle of the plantation must give place to the cottage on the electric road. The city daily and the telephone are already supplying the news to thousands where only a few years ago the weekly newspaper was a luxury. With good roads, with free rural mail delivery, with township high schools, with electric railroads, with denser population, with good social advantages, with nearer markets, with intense cultivation of the soil, the farmer of the future must be a very wide-awake man. There is no branch of industry, no department of human endeavor, to which the future holds out more promise of material advancement or better hope of reward for honest labor than agriculture. It is certain that we have had only a glimpse of the possibilities of production in this country. The unsolved problems are legion. If times are hard and prices low, there has never been a time when the farmer had so much sympathy and substantial help as now. A farmer is called to represent his fellows in the President's cabinet. No other occupation is thus honored. The general and state governments spend millions of dollars annually in direct effort to lighten his labors, increase his power, and better his condition. There are 53 experiment stations which place their bulletins on his table free of cost. The agricultural press draws upon all human knowledge, peers into every laboratory, digs in every garden, questions every specialist, records even the failures of the eminent scientist and the humble laborer, in its intense desire to place all the very latest agricultural information on his table every week. And it does all this at a price far below the "cost of production."

With so much encouragement, who does not wish to belong to the privileged class? But there are conditions. The successful farmer of the future must be not only a hard worker, but a close student. From the past he must learn to pattern after the old pioneers in their devotion to toil. In the present he must keep pace with the zeal for research. As regards the future—well, I am not a prophet—he must just simply hold himself in readiness for anything and everything. One thing is certain, he must be broad-minded. He must be able to reason both ways. To see both sides of a question. As he is to be more closely associated with his neighbors, he must learn to coöperate. That means give up part of his own opinion for the public good. As population increases the public become more important, the individual less so. If you don't think that is a desirable thing, just try to get people to build a gravel road or deepen a ditch.

The demand of the times is for educated farmers. And now who is an educated farmer? I count among my dearest friends an old man and his wife who live on a fertile quarter section of prairie land. When they bought it over forty years ago they couldn't produce enough on it to live cheaply and pay the interest on \$600 at 6 per cent. Today there are large barns, fertile fields, good fences, beautiful grounds, a productive orchard, a fine garden, and a home which it would do your soul good to visit. Yes, and your body, too, for they set a table that for years has been famous in all that country. Hundreds of dollars go from that farm to support school and church. Now what did it? Long years of faithful, honest labor, good management, close study and careful economy. He never had any sons to help him. In his quiet, modest way he will give you pointers on stock-breeding, farm management or Christian conduct. He can't explain a nutritive ratio and doesn't even know oxygen when he meets it in the road, but, as far as the farm is concerned, he is a master of practical agriculture.

Yet we should not undervalue book learning, and especially we should not get a wrong notion of it. Education does not unfit a farmer for work. You might as well say that steam unfits an engine for work. Knowledge is power. The more the farmer knows the more powerful he is. And if his book learning is backed up by a plentiful supply of old-fashioned "gumption" it makes him all the better able to lay hold intelligently and "work out his own salvation," to face facts and adapt himself to circumstances. Working hard he is the more free from drudgery. Getting much from others he is the more independent. Instructing others he is himself more teachable.

And now the farmer's son and daughter who are to succeed him in business, and who can have the opportunity, should go to an agricultural and not to a literary college. By all means take that course which will do you the most good in your business. It's like putting steam into the cylinder. Education which is not practical is like steam which escapes under pressure—wasted power. When we expect to raise corn we select the best seed. The time has come when only the very best boys and girls should be selected for farmers. They should have good sense. They should be smart without being "stuck up." They should love work but not be slaves to it. They should be economical, but not miserly. They should have all the education they can reasonably get for they will greatly need it.

We need more and more to apply business principles to our farming. The way to make the young people think farming is the best business in the world is to just simply make it so. We may well copy from our town brethren the conveniences and adornment of their homes. It's wrong for the farmer's wife to carry rainwater from a barrel at the barn, when her sister in town gets water from a faucet in her kitchen. Fully one half of the disadvantages and inconveniences that make farm life distasteful and its labor drudgery might be readily done away with if we would only get about it. One of the best things I ever did in my life was to sell the poorest cow on the farm and build a comfortable stable for the others. Such things don't all come at once, but lay a plan to have them and work away until you get them. It's wonderful how a man likes to work when he's fixed for it.

We ought to keep that healthful and free spirit of the country. While the old-fashioned straight path from the gate to the front door, hemmed closely in by phlox and marigolds, may well give place to the neatly cut and beauti-

fully curved walk through the greensward, clover blossoms must not be displaced by chrysanthemum shows. The farm will always need earnest men and women who are willing to grapple with the ever-present difficulties, and bear the necessary hardships in order that they may enjoy the great benefits and reap the sure rewards of country life. To these it will be a genuine pleasure to live to a good old age on the old homestead, surrounded by succeeding generations of enthusiastic farmers, and to die amid peaceful scenes of rural contentment, soothed by the perfume of flowers and lulled to rest by the hum of bees.

BUILDING UP OLD ORCHARDS.

By George N. Parker, Robinson, Ill., read before Clark County Farmers' Institute.

An old orchard is like an old man, when he has run his race, he is but an old man and to make him the man of former years, is to make him over, so to speak. You may patch him up, or, if he is young and run down, or out of shape you can build him up, but if he is an old man, nature has perhaps done for him all that can be done, and he has lost his power to perform anything in the great battle of life only that which is required of an old man. So it is with an old orchard. If the trees have lived their allotted time, it is hard to restore them. When a man comes to the expert physician he diagnoses his case, and if he comes to the conclusion that he is merely an old man the physician will say, "Well all I can do is to patch you up—I can not make you over. You are but an old man but I can make your last days more pleasant and I will do what I can to build you up." So, it is in the case with an old orchard. If it has lived out its days, it is a hard matter to build it up. But if your orchard is old and the vitality is still in the tree to build upon, we may be able to suggest some remedies. Many orchards seem old from neglect, and the want of attention make them like a man grown old from the same cause. If an orchard has not been properly pruned, when young, old limbs cross and rub each other and are thereby killed. Such old limbs want to be removed at once. You take the average old orchard that has been neglected and you will find them full of dead limbs, borers and sodded grass. The orchardist must take out all the borers, cut out all dead wood destroy the sod from around the tree. No tree will thrive in timothy sod, and the sooner we learn that orchards soon become old, when they are sown to timothy, the better.

If you will observe, many of the old orchards are sown to timothy, and you will find many of the trees dead and gone. You often see men appear old, when they are not and their condition may be due to disease, dissipation and neglect. Many orchards appear old from neglect, when, in fact, they are not old. An old orchard may be built up—if not beyond being built up—and even then, with proper treatment, it may be partially restored.

Take the average old orchard and, as before stated, you must remove the sod from the trees. This may be done by shallow plowing but far better with the disc harrow. Destroy the sod, dig it away with a hoe when you can not otherwise reach it—then cut out all dead wood and look carefully for the borers and take them out. In many cases cut the tree back and start new wood and thus restore vitality. In many trees it appears that there is too much top for the roots to support, and by cutting out part of the top you may restore the vigor in the trees. The great trouble, in many cases, and in fact in nearly all, is that the tree is starved to death—that is there has been a continuous drain on the soil for years—both for the fruit and wood growth and a continuous drain upon the soil has taken up all the fruit and wood making quality of the soil. In fact the ground is exhausted and must be built up.

An old orchard would be one that had stood for years, and year after year, had put forth fruit and wood and the only surprise to the orchardist is that it did not become an old orchard sooner. You would not think of planting,

year after year, your same field in corn without fertilizing, because you know the land becomes exhausted, yet on an acre of land, you will plant fifty apple trees and these trees will give you an average of, say ten bushels, per tree per annum, making some five hundred bushels per acre—and with this continuous drain, it is no wonder that the orchard becomes "old." In case the orchard becomes exhausted, what you want to do to build up such an orchard is to fertilize it. If you fertilize, your orchard will be built up, and your trees made vigorous and your fruit large. When the fruit producing quality of the soil is exhausted it must be restored. In an old orchard you see many dead limbs and many dead trees. Why is this? It may be one cause or it may be another. It may be due to the want of cultivation, the presence of borers or from exhaustion.

You have learned the causes do either exist, if so, the cause must be removed. Tear away the sod—hunt out the borers and manure your orchard. Again, the old orchard can be built up by keeping out the water-sprouts which take the growth from the tree and thereby exhausts the proper wood growth of the tree. If your orchard is composed of seedlings and the fruit is of poor quality, graft on some good varieties. There are several methods of grafting which can be readily learned by consulting a work upon grafting.

Many old orchards are not properly drained, and with proper drainage, they will be greatly improved. You ought not to permit water to stand around the tree. The surface water can be taken off by open ditches and the under water by proper tiling. It has long been a debatable question in my mind whether an old orchard should be sown to clover or given clean cultivation. I know that I would recommend clean cultivation in a young orchard.

Our great cause of premature decay in what may be termed "old orchards" is the variety. Some varieties are much longer lived than others. In fact, they don't come into bearing soon. The Ben Davis is an early bearer, while the Minkler and some other varieties come into bearing late. The Ben Davis is often gone—fruited itself to death—when the Minkler is in its prime.

An orchard frequently becomes old when it ought to be young, because it has been forced, in fact, it is like some young men, it has lived too fast, and fast living brings many young men to untimely graves, so does overbearing or forced growth beyond what the tree should be taxed, bring early decay, therefore the orchard should have proper care and it will make proper growth. When the tree is gone there is nothing to build to, and hence we must then plant a new tree; and now to get the new tree to grow is the great question. How many of you know, by experience, that when the old tree dies the young replant does no good? Why is this? There are several causes. The first is that the properties in the soil, which go to support the tree, have been exhausted by the old tree. If you will observe when you dig a hole for the new tree, you encounter many roots, thus showing a complete net-work of roots between the trees, and you thus see that all parts of the orchard are ramified with roots. The rule is that if the soil has been properly prepared and is suitable for orchard growing, the roots are as long as the tree is high. You see the limbs of certain varieties interlock and so do the roots, and when you wish to plant a new tree you must prepare for it. You should take the old tree out—digging out as many of the old roots as possible—and try and kill out the roots of the old tree, then plant your new tree where the old one stood and fill up the hole with new soil that has not been exhausted by tree growth. Then cultivate your new tree and if not in position for cultivation mulch it heavily. We often find the old orchard has been "set to timothy" and the old trees perish therefrom and the new tree is set in the same sod without renewing the soil, and the farmer stands in amazement and wonders why his new tree does not grow—the same reasons that have caused the old tree to die are present and ready to destroy the new tree. The new tree must have attention, must be kept free from sod and grass, must be cultivated or mulched, kept properly pruned, cut back when set to correspond with the short roots that the nurseryman has seen proper to leave on the young tree. The ground around the new tree—and I might say the old ones too—should be well fertilized. The new tree needs the same attention as if it was just set in a new orchard. It must be properly set and receive proper care thereafter. It is a mistake to plow deep in an old orchard. Would prefer using a disc harrow, which will give you surface culti-

vation, and not lacerate the roots. If you tear through the orchard breaking the roots, you must necessarily injure your tree—the roots are the feeders for the support and nurture of the tree and when you destroy the source of tree support you thereby injure it.

If you determine to cultivate your old orchard, you want to do so in the spring and until about the first of August, when you should stop and not promote wood growth too late, for if you do the wood will not mature and will be damaged during the winter. The limbs on old trees become very brittle, and the first need trimming to prevent breaking the limbs, and by thinning and cutting back the fruit will be much larger and better.

If my subject was not "How to Rebuild old Orchards" I might give you some idea of how to prevent an orchard becoming old so soon, and that would cover the whole horticultural field, and I may be permitted to add here a few suggestions that I made on the 31st of last month to our County Institute at Robinson, Illinois. I then said: "In any line, the farmer has many things to take into consideration in successful farming. He must first see that his soil is adapted to his crop, then see that the soil is properly prepared for that crop particularly, then the selection of seed should receive careful attention. And in no pursuit of the farmer is this truer than in horticultural farming. We must see that our soil is adapted to fruit growing. It must not be too rich to induce too rank wood growth (for we may have too rank growth) and hence liable to be winter killed. The ground must be placed in good condition—well drained. After this comes proper selection of tree and varieties.

Cheap trees are a mistake. You want well-proportioned, healthy trees. If your trees are ill-shaped, stunted, you are liable to make a failure. The first consideration in a good orchard is in knowing that your ground is adapted to raising trees, and I may say that this prairie soil near Robinson, and that running south and west, seems well adapted to raising fruit. So, then, it is proper to be careful in the selection of the soil to get a good orchard, and therefore, be very careful and particular about getting the right kind of soil for your orchard. I speak of the clay land around Robinson as being my ideal of soil for orchard growing. If you have on your farm a piece of ground similar to this, you would, in my opinion, have a piece of ground suitable for an orchard. The location has considerable to do with it. You want it located so that you can give it good drainage. If your trees have wet feet (or roots) your ground is not properly drained, and your trees will not grow. After selecting your soil, then select a proper location that can be well drained, for there is no question but what the drainage of an orchard is a great point in successful orchard growing.

Next, after selecting the location and seeing that the drainage is perfect, comes the preparation of the soil, which is a very important thing. It is no use to anticipate good growth in unfavorable conditions. If you dig through the soil and down into the hard-pan, and set the trees into the hard-pan, you will find that you have made a failure. The tree must have freedom in the ground, as well as above, and it will grow better if you have your ground thrown up into small ridges, that there may be soil under the tree as well as on each side of it. See that there is plenty of room for the development of the roots. I understand it to be a rule that the growth of the roots are, in proportion, the same as the top of the tree, hence you see that if there should be any hard-pan and you get the roots down to it, the tree can not grow. If your tree is not growing up, you can rest assured that it is not growing down. If your tree does not grow you will be very apt to find that the roots are too near the hard-pan. The roots must be so arranged that they can readily grow. Break your soil very deep and place the tree above, and not in the hard-pan, beneath. If we could have a sub-soil plow, it would be an excellent thing in preparing the ground for planting.

Next comes the selection of healthy, well-developed and properly-proportioned trees. It is too often the case that a man in looking for trees for an orchard, buys the cheapest trees. A cheap tree is like a cheap horse—don't fill the bill. You don't want to pay fancy prices, but you want to pay enough to get a healthy, well-proportioned tree. You don't want a tree that is diseased when you plant it. You can not expect success out of a tree that has not had

proper care in the nursery. A few dollars spent at the beginning of an orchard, in the selection of good, healthy trees, well-proportioned, is the best money spent on an orchard. You might sometimes get trees from a nursery that were not worth planting, even if they were given to you. I would advise you to get trees the bark of which looks healthy. Get a good tree and you will have good results from it.

Now as to the manner of planting, which is very important. I suggest that if you want to have a tree give good results, give a great deal of attention to planting. A great many people think they can just make a hole and stick a tree into it, and Providence will do the rest. Providence will do His part, but a great deal depends on the planting. Usually you want to plant a tree not far from the depth it stood in the nursery, and in good fine soil. Put the fine loose dirt around the roots, but don't throw in any chunks or clods and grass, "just to fill up." Take a great deal of care in setting a tree, and tamp and press the soil around the roots. Pitch your tree southwest. The winds in the spring are from the south and southwest, and if you pitch your tree that way they can better resist the strong spring winds; and if they are pitched that way the top of the tree will shade its body and save it from sun-scald and borers.

The selection of varieties, is very important. Of course, most of us who are engaged in commercial apple-culture are attached to the Ben Davis, for the reason that experience shows us they are a success. I know a great many persons dislike the Ben Davis, but I dare say there is not one person in this house but would be ready to take a Ben Davis now, if we would pass around those on exhibition. The Ben Davis is, in this country, a sure cropper, as a rule, and it is one of the best varieties for commercial orchardists for the reason that, in addition to being a sure cropper, it comes into bearing early. But they are short lived trees, there is no question about that. The trees do not last so long as some other varieties, and there are other varieties that are excellent. This year, we all know, the Wine Sap was our best apple, and gave the best results of any variety, and it is a good eater and a fair cropper, and we generally have apples of that kind. I have seven hundred Minklers. They are seven years' growth, and I have had two partial crops. The Minkler, as I am informed, is a very long lived tree, but does not come into bearing early, though it is very long lived. I saw in the Horticultural reports for last year that the original Minkler tree is very old, but is still standing. As a commercial tree the Rome Beauty is a mistake, yet it is an excellent dessert apple. I am "stuck" on some six hundred of these trees. Last year, where I got a large amount of Ben Davis apples, I did not get scarcely any Rome Beauties on trees of same age.

The Rome Beauty, like the Grimes Golden, drops from the tree early, because it ripens before most winter apples. You want to gather them in their season, and don't permit them to drop and lie till you gather your winter apples. You can not wait and gather them at the same time you do the Ben Davis. I might discuss different varieties all forenoon and give you my ideas on the subject, for I fear I have been buying too many kinds of apples. I think the commercial orchardist does not want many varieties. I have, at least, fifty varieties in my orchards. In fact, I have a few of nearly every variety known to us in this part of this State. I have been experimenting with them, but the bulk of my orchard is the Ben Davis, Minkler, Gano, Wine Sap and Rome Beauty. I have, however, quite a number of the new promising varieties.

After we have selected our varieties, and have the orchard started, there is a very important thing to consider. That is pruning. I confess that in my orchard, due in a great measure to the fact that I had too much to take care of, the trees have not always received the trimming they should have had. You want to do your trimming while they are young and get them in good shape. You can trim your tree so that it will be in almost any shape desired. In trimming, you want a man that understands his business, and who will be very careful to keep the proportion of the tree, thereby preventing the tree from lopping over to either side. A limb, or set of limbs, coming out on one side of the tree may not be crowded when it is young, but when they grow out they will be crowded. You should be careful to see that these limbs are

removed when they are small, and the proportion of the tree kept up. When you get your orchard trees properly proportioned and with proper heads, you don't want much trimming, for that wants to be done when the trees are young. You want to look into the future, and imagine you see the young tree in bearing, and determine what trimming will be needed, and do it when the tree is young, and don't wait until the growth is made, and then lop off the growth from the tree, and leave a great unsightly scar on the tree and a great waste of wood growth. After they get started you want to do only such trimming as is absolutely necessary, that is, where the limbs are crossing or interfering. Keep the water sprouts off. A great many trees are allowed to retain the water sprouts, and thereby destroy the growth of the tree. The substance of the new growth goes into them. We aim to trim our trees two or three times a year. We go through the orchard and where we see a sprout starting out we take it off, and when it is taken off, when it is young, you can just push it off with your thumb and it don't leave any scar, and you stop the growth that would otherwise go into the water-sprouts and then it goes to strengthen the tree. You will notice that where they are allowed to grow it seems like all, or nearly all, the growth of the tree goes into the sprout. Trim your orchards as often as they need it. We go through our orchard two or three times a year and trim what is needed. You should trim so as to leave low heads and so that the under limbs will not come out higher than eighteen inches. You want to know how to trim to keep the head of your tree open, because when the fruit matures, you want to have it a good color, and you know, by observation, that unless the sun and air gets into the top of the tree, the fruit won't color, and the apple will be larger by not being crowded. If you permit too many limbs to remain on your tree when you trim, every limb may have as many blooms as it will hold, and every bloom will give you a small apple, and there will usually be more apples than the tree can properly mature, and you will have a lot of small and imperfect apples. You should, therefore, thin your trees and fruit, so as not to tax them too much by attempting to raise too many apples. What we want is nice apples of good color, especially for commercial purposes.

The question arises as to when to do our general pruning. That is an important question, I admit. I have heard it said, "the best time to trim trees was when you had a sharp knife." Take an orchard where you have considerable acreage, and a limited amount of help, you have to trim more or less all the year. In our orchard we do not trim during the coldest part of the season, but along the latter part of February we will go to trimming and try to get this general trimming done by spring—all that we can for when spring comes, we have to cultivate, for our orchards needs cultivation just the same as your corn or wheat. Neglect it, and you will not have good results. In growing apples for money you have to give the orchard attention just the same as you would any other crop. If you could select your own season, and was not crowded for time, or had plenty of help, probably spring is the best time to prune—say along in April, May and the first of June. But we can not always select our own time unless we have an abundance of help.

I incidentally spoke of thinning. This is a great question, especially in peach growing. I have learned something in the school experience and I know that if you want to get good results you have to thin your peaches, and this applies to all fruits, as well, you have to cut them back and take out the surplus wood, so that the strength and new growth instead of going into unnecessary wood will go into fruit. This spring we intend to trim or thin our peach trees and take out the extra wood. If you cut away half the limbs, the other half will give far better results in size and quality of peaches."

And farmers of Clark county, I think if you will follow these suggestions, that I gave the farmers of my own county, and if you have failure, it will not be due to want of proper attention.

Farmers of Clark county:—You should attend your institutes. Make them interesting. All participate in the discussions. Take an interest for you are the "salt of the earth". And upon the farmer all depends. Failure upon the farm, is failure everywhere. Cities and villages depend upon you. You are the source of a good share of all wealth in this country and without your success all fail.

If the farmer can't sell the products of his industry for what it costs to produce it then he can not purchase from the retail merchant for the want of money to pay for the same, and as the retail merchant has lost his customer in the farmer's failure, therefore, the retail merchant can not purchase from the jobber and he, in turn, can not purchase from the manufacturer and hence, the shops are closed for want of patronage and the men are thrown out of employment and go upon the highways as tramps, all produced by the inadequate prices to the farmers for the product of his toil.

There is a cause for this, and the remedy is in the hands of the farmer and he is untrue to himself if he don't apply the remedy.

Therefore farmers of Clark county get your heads together and act for your own interest, for when you get proper prices for your surplus you will be enabled, thereby, to purchase and that will start the wheels of prosperity, and we will again be placed on the highway to prosperity and a betterment of the condition of the whole people will inevitably follow.

TILE DRAINAGE FOR PROFIT.

By H. C. Middaugh, of Clarendon Hills, at the DuPage County Farmers' Institute.

Land which would be benefited by drainage "hangs out a sign of its condition, more or less clear, according to its circumstances, but always unmistakable to the practiced eye." It may be the low level marsh with standing water, or the broad flat prairie with a heavy sub-soil of clay, or it may be the high rolling table land with depressions here and there when, after heavy rains, the streaks of dark and light alternating on the plowed field, show that the water can not drain away, and the growing grain later shows the yellow streaks in the oats, curling leaves in the corn, and even spindling grass in the tame meadow field. These signs of distress suggest themselves to the owner of the soil, and the remedy is drainage. It is an acknowledged axiom in drainage that all lands (unless underlying the surface soil there is either gravel, sand or light loams) are benefited by tile draining.

An acquaintance with the soils of DuPage county leads to the belief that four-fifths of the farm lands need tile drainage to improve the crops, to say nothing of the sanitary benefits, so much desired with our increased population. While upon this point of sanitation, we might refer to the pond holes and low places common near the dwellings of thrifty farmers, utilized as swine and duck ponds, while in reality they are valueless as far as profits are concerned, and sources of disease. The results of seeming profit by continuing such places are more than offset by the menace to health and oftentimes life is sacrificed by the existence of such places. The miasma arising from these ponds, and all low, flat, wet tracts of land, are the breeding places of fever and ague and kindred diseases.

Having indicated the kind of soils that need drainage the question may be settled by inexpensive experiments. If you will dig a hole upon some high piece of land three or four feet deep, and notice the effect after a rainfall, and find the water standing there days or even weeks, the remedy is drainage. If in the spring of the year after the frost has departed and you are ready to plough for a crop, you find the water following the furrows, it surely needs drainage. Other ways for testing soils that need drainage may be found in dry weather. If the ground cracks open or dries up it is because the water below remains there and excludes the air while the hot sun bakes the top and it shrivels up. According to scientific authorities "the evaporation of one pound of water will reduce 100 pounds of soil 10 degrees" while if the same pound of water is filtered through the soil into drainage pipes it will have no other effect upon the soil than the temperature of the water, as it may be either a cold or a warm rain. As warmth and sunshine are necessary adjuncts to vegetation, much depends upon these conditions of allowing the water of snows and rainfalls in being readily disposed of as soon as the soil has absorbed all that was necessary of fertilizing matter contained in them as it passes into the drains and is carried away as useless. All soils are more or less porous, the gravelly and sandy loams the more so, and the clayey the

least. In discussing the question of drainage for profit it is not the intention to treat much upon porous soils of the gravelly or sandy loam, but would include all muck or peaty formations, for they are generally surrounded by elevations, practically water tight. Lands of this description are immensely benefited, sometimes a thousand fold. Before drainage, a quagmire, whose vegetation may be bulrushes, cat's-tail and wild sunflowers, the abode of musk-rats, bull-frogs and the like, when brought into cultivation by thorough drainage it becomes a "Garden of Eden."

The fertility of such soils properly tile-drained for adaptable crops are almost limitless. The reason, therefore, is perfectly natural by virtue of their location and surroundings. The wash from the higher lands, the best part of it, has been deposited into these quagmires for ages, and by virtue of these deposits a rank growth of vegetation grew to die and decay year by year, until a depth of valuable deposit lies therein far richer than the compost heap, equalling many of the manufactured fertilizers for sale at the cost of many dollars per ton. The benefits to be derived from reclaiming these low marshes and pond holes upon higher lands are varied. In the first place it does away with an eye sore to every intelligent citizen who passes it. It removes a disease breeding place, the fields are uniform and continuous and lastly, not least, the farmer is saving dollars, where there was only an obstruction. How many of our neighbor farmers that have a 160 acre farm has not one or more fields that have one of these low places upon it that he can not plow, or does not, because it is at times too wet and the crop generally a failure. The extra time spent in working around these places would cultivate the crop (if drained) and the proceeds therefrom clear gain. What is true of these smaller ponds and slough holes is equally true of the larger tracts of low marshy grounds, the owners of which are paying annual taxes, together with the original cost of the land, with interest compounded year after year, to be liquidated as damages against the rational policy of redeeming such lands and making them a source of profit.

The depth at which tile should be laid has been a mooted question for many years, until I think the consensus of opinion is in deep tiling. Of course this may be varied sometimes, necessarily, to accommodate the outlet, but better spend a little more in the depth of outlet than to lay the tile too shallow and only reap a partial benefit, when a suitable outlet will give the greater benefits. Three feet on top of the drains, or tile, would be the minimum of depth, and better still four feet, and why? If tile at three feet depth will drain land forty feet (twenty feet each side of the tile) at four feet they will drain sixty feet or thirty feet each side. The extra foot digging is offset by a saving of 50 per cent. in the tile. In England they used to lay their drains twenty feet apart, twenty to thirty inches deep. Today they are putting them down five feet.

It may be asked, "How do these drained lands stand drouth in dry years, where there has been an absence of the usual rainfall?" The inference might be that it would be dryer, while the actual experience is the reverse. If the water that falls upon the soil is allowed to pass through and away in drains, the air follows the water down and circulates among the lower and cooler particles; the atmospheric moisture thus formed will keep the soil supplied with water at a point accessible to the roots of the growing vegetation. We need only to refer to the pitcher filled with ice water upon a hot day, to notice the moisture collect upon the outside. This water does not go through the vessel, but is distilled upon the outside by the hot air coming in contact with the cooler surface. Now what are the actual facts in a tiled field of clayey land in dry weather (we will nearly all agree it is a good thing in wet weather), be it corn, sowed crop, or meadow? In the oat field the grain becomes a little yellow, and if the drouth continues, a little more so. At this time you can go over the field and locate every drain by a green healthy strip (varying in width as the tile have been recently or longer put in) of dark green color, a little taller over the drains, of rank growth. The same thing is distinguishable in the meadow, and affects favorably all vegetation. In concluding this matter of the advantages and profit of drainage, the important part lies before us of how to put the same into practical use. In these times of low prices for farm products, and small profits, the average farmer has none too much

loose money lying idle—or if he has some lain by for a rainy day, many hesitate before using it in land tiling. To those who have the money, drainage pays a better rate of interest than he can get from loaning it out, and a sure return. Those who have not the ready money, it will pay to borrow at even 10 per cent. (not legal any more) to drain those waste places. The increased returns from such drained lands will pay principal and interest in a few years, to say nothing of the profit to be derived from drainage for all future time. Tile drains properly put in, with good burned clay tile, are almost indestructible. The longer they are in the more efficient they become. In stiff clayey soils it takes two to four years before they drain to their best, and when once the soil becomes thoroughly drained, and the air has permeated all of this drained body above the tile, then can we expect the best results from underground drainage in heavy compact soils.

Having the soils that need drainage, and waste lands that need reclaiming, and the disposition to do the work, brings us to the question of outlets, and how to go to work to lay out a system of drains. The first point to determine is the outlet, and this is not always an easy matter, for the lowest grounds may be in the center of a large tract with no perceptible outlet, or not at least until this low land is full of water, when it may partially run or drain away. If when full of water it flows in a certain direction, that settles the outlet, and a surveyor or engineer with proper instruments is necessary to take the levels from the lowest point to be drained, and establish a line with the cut necessary to drain, and give the tile a fall through the higher ground. When this is done, and stakes set along the route of the ditch to be dug, and not over 100 feet apart, and marked upon them, the cut at each stake, then the outlet is settled. If this should necessitate the crossing of your neighbor's land, you may have to continue the drain until it meets a natural water course. Your neighbor may be willing to join you in this outlet, in such a case the expense is shared proportionately as to the benefits. If your neighbor is not willing to join you, and further, objects to you crossing his land to the natural outlet of the tract to be tiled, the law of 1885 will enable you to secure the right of way legally, by bringing suit before the justice of the peace, whose decision is final. The new outlet by means of a bored well, connecting with a subterranean passage, is the mode adopted by some, who have thought it preferable to deep cuts and long mains to secure an outlet. Having determined the outlet, the grade of the main located, the side drains where they connect, you are ready to commence the work, providing you have your tile on the ground and tile diggers. Begin at the outlet and work and lay tile up grade. At the places where branches are to be connected with the main, better put in the junctions as you lay the mains, for two reasons: First, the variations in the length of drain tile prevent making a good joint where a main tile is removed and a junction substituted; second, you avoid interfering with the main and the chances of getting mud or clay in the pipes. Over the end of the junctions put a board extending a little above the top of the ground, marking the points on the main line for future work when you want to put in the branches.

There are several things necessary to observe in digging and laying tile drains, especially when deep cuts are encountered, and more so, if the tiling is done in early spring, before the ground is settled and dried out. The most serious is the caving-in of the sides before the work is finished. It is preferable, all things considered, to do the work in deep tiling in the summer or fall, after all the heavy rains are over, to avoid too much water, which makes very unpleasant work. As fast as the ditch is finished put in the tile before the close of each day's work, and cover them partly with the fine clayey soil taken from the bottom of the ditch, being careful not to let any stones fall upon the tile to break them, or wedge in upon one side and displace the position of the tile before the ground has settled around them, so that they will remain as laid. Before leaving the work for any length of time, for any cause, either place a bundle of twigs, larger than the opening of the tile, at the upper end, or better, a cover of wire netting set over the end of the tile, to prevent mud or clods from washing into them and closing them up. The outlet should be permanently protected with vertical bars, so that mud turtles, musk rats rabbits or the like can not go into the drains and partially or wholly obstruct

them. In laying out a system of farm drainage, it is advisable to make a diagram of the work to be done, and if the work is to be carried forward from year to year, as time and circumstances will admit, the charts will be a handy reference. The main drains are generally the most expensive, but they are absolutely essential to make drainage effectual.

Time and experience in drainage have worked wonders in the cheapening of the cost of drain tile and the manner of putting them down. The quality of tile has improved, and those that are soft or underburned, as well as those that are overburned, should be rejected. Perhaps this subject of drainage for profit can not be better illustrated than by giving a description of forty acres of slough, surrounded by higher lands from six to twenty feet above it, an inland lake a part of the year, fenced so that stock can not go upon it, because they could not get out unaided. A peaty soil, sixteen feet deep, to clay in the center, spongy, covered with a heavy growth of wild sunflowers and other noxious weeds in the middle, with a coarse slough grass upon the outside. It was cut for several years and drawn off and burned upon the high land. The expense of cutting, gathering together, drawing and burning this crop of useless vegetation was greater than the same number of acres would have been had it been cultivated with a profitable crop and all loss. The experiment was tried of burning up the weeds and coarse grass after cut and cured upon the ground. It was a failure in its results, as it destroyed many thousand yards of rich soil and cost much to fill the burned out places again to get an even surface. The next year open ditches were dug to try and drain off the water, hoping thereby to make meadow land, seeding with red-top. The yearly cutting of the weeds and the open ditches had partially changed the vegetation, but the ditches soon filled up, so much so that they did not drain the ground more than twenty inches deep. The water could not get out only as it was evaporated by the sun, and the soil was cold and damp. The vegetation was reduced to about one-half ton per acre. The red-top all dried out, and it was a sickly piece of ground. The open ditch was dug eight feet deep, to relieve the surface water. This ditch had the capacity of equal to four feet by four feet, and would run full for two weeks or more every spring. The first question suggesting itself to the person wanting to tile such a piece of land would be: What sized tile is required to carry off this volume of water effectively, so as to insure the certainty of raising tillable crops and not have the water interfere with successful cultivation? The fall in 100 feet is also to be taken into the calculation in determining the size, as anyone can readily understand, the greater the fall the more capacity. Having determined where the outlet should be, finding a fall of sixty-three inches in 100 rods (1,650 feet) at a depth of six feet at the lowest point of the ground to be drained, it was decided to put in a twelve-inch main. About fifty acres were uniformly tiled with 43,000 feet of drain tile, connected with the twelve-inch main, and the main has never been taxed more than forty-eight hours at any one time to its full capacity, and at these times there did not appear any water upon the surface of the ground. Capacity is increased by depth and fall, i. e., a six-inch tile drain three feet deep and fall of three inches in 100 feet, would be increased by putting four feet deep one-third, and if it had a fall of four inches in 100 feet instead of three inches, would be increased one-third more in theory, while in practice it has been demonstrated to be greater. The practical benefits of drainage are the matters which most interest the farmers, and whatever we can do to make our lands more productive, and insure full crops in wet and drouthy seasons, adds so much to the natural conditions of our farms. Lands tiled—drained intelligently—are surer producers of better crops than untiled. The corn raiser upon the tiled lands has never to replant because of wet and the seed rotting after planting, unless put into the ground too early to vegetate, and after the corn has come up, only very heavy rains, and then for not more than a day or two, will cultivation be interfered with. We do not mean to be understood that any thin, poor soil will be made rich by drainage alone, but that it is the first requisite to increase its possibilities of greater production. There is fertilizer in the rainfall, and if it can percolate through the soil down to the drains (instead of washing off over the top and carrying the best soil with it), the ground will appropriate all that is valuable, while the surplus is carried off through the drains. If, in

addition to drainage, manures or fertilizers are applied, we are pretty sure of redeeming these partially productive lands, and by so much increasing their earning capacity. There are thousands of acres of untiled, unoccupied lands, naturally rich, that can not be rented for profit, lying near the great market of Chicago, for lack of drainage. This is not because these lands can not be drained, but in many cases because the owners are not educated as to the increased value and earning capacity of tiled, as against untiled, lands. If the Farmers' Institutes can stimulate into active competition this drainage problem, we will have added another factor to our material prosperity, and find profit in drainage.

RELATIVE VALUE OF FEED FOR BEEF OR MILK.

By C. D. Bartlett, Bartlett, at the Farmers' Institute at Wheaton, DuPage county.

Having been called upon to address you at this Farmers' Institute on the Relative Value of Feed for Beef or Milk, I am willing to impart any knowledge I may possess on this subject, and think each and every member should contribute what little knowledge he or she may have that would be of any benefit to our neighbors.

It is a fact that the farmers, as a class of people, are not inclined to speak of any small detail concerning their system of conducting and manipulating farms, but are inclined to hold it as a great secret for fear their rights might be infringed upon.

In all other classes of business there are many meetings that may not be termed as combinations but as business association meetings, where each and every member expresses himself as to his business and all its minute details, and each one departs with a knowledge of his neighbor's methods thoroughly discussed in open meeting.

The farmer should be the most social and fraternal member of an organization that would lead to the higher and better qualification of all in his community; he should not consider it a great secret if he is able to produce a few more bushels of grain or seed than his unfortunate neighbor, but should be willing to assist him in every way.

It is true that almost any man can carry on a farm, but the question is, can he do it successfully? It is not the amount of money cleared in one year that makes the farmer successful, but the number of dollars saved in connection with the handling of his soil and the improvements of the general surroundings of his premises.

It is a well known fact that in localities there seems to be an inclination to produce of one particular commodity, when perhaps were these people to meet in regular sessions and discuss their manner and mode of producing this special article, taking the amount of money involved and the amount of money gained from each, it would surely in time change for the better the entire system of producing their particular articles.

I am of the opinion that there are in this community products produced that are produced at a loss; each man thinking his neighbor doing well in this particular line, attributes his loss to his inexperience in the business.

How few farmers in any locality know what it costs to produce any one article that is produced by them. There is no reason why farmers should not know what it costs to produce their products as well as the coal, the iron, the gold or silver miner knows what it costs him to produce a ton of his ore, or a manufacturer of any particular article.

It might be well here to give a few items that would be of interest.

According to the Illinois State Dairymen's Association, there are 16,000 cans of milk shipped to the city of Chicago daily, and according to the 11th census of the United States Illinois has 1,087,886 cows, and this report shows that each cow requires an investment, including land, buildings, etc., of \$210.

It also states that it requires seven cows to produce one can of milk per day for a year, showing an estimate of \$23,520,000 invested to produce the milk for a single city.

Estimating the population outside of Chicago, we have \$82,200 invested for the purpose of supplying people with fresh milk, and how few practical farmers there are who know the cost of producing an article whose combined wealth equals or surpasses any industry throughout the State.

The United States Agricultural Department places the cost of producing in the western states: An acre of corn, at \$11.44 per acre; an acre of oats, at \$10.46 per acre; an acre of wheat, at \$13.09 per acre; hay, at \$8.50 per ton.

The price of grain is not the only item which figures in the production or the price of producing milk, as there are certain fixed charges that have not changed in several years, that is the price paid for transporting the product and the rental price per acre of the land.

Now, the question that should confront the farmer is, to what purpose can he put this feed that he may realize the best returns? It seems to be the universal idea of the farmers of DuPage county that the only way to realize a dollar is by the production of milk, which is one of the most confining and slavish occupations known to man. He is not only compelled to rise early in the morning, but must work long after sunset, each and every day of the year, regardless of his religious or social inclinations. He is not only made a slave, but is subject to the dictation of a few men when he comes to market his product. He is constantly handling a perishable article, and unless disposed of within a limited time is utterly worthless. He seems to have no say whatever about its value when placed on the market, nor can he produce a low quality to compare with the low price he receives, but is soon told that his article is no longer wanted if it falls below a certain grade.

I will take the present time for the comparison of the relative value in feed for milk or beef.

To arrive at these figures I find that an individual cow will consume 25 pounds coarse fodder, 15 pounds ground feed, 3 cents per day for milking and 3 cents per day for delivering her milk. Allowing this ration, it will require 75 pounds hay, 45 pounds ground feed and 18 cents worth manual labor to produce a can of milk from an average dairy allowing three cows to the can, which is less than one-half the number of cows of the estimate made by the Illinois State Dairymen's Association. The value of a can being 80 cents for the present six months in Chicago, less the freight, or 65 cents net. The amount received for 120 pounds feed required to produce it.

Next, taking the factory as a basis, allowing $4\frac{1}{2}$ pounds butter to the cwt. of milk, one can of milk will yield at this ratio 3.1 pounds of butter, the present market price being 19 cents, less $.03\frac{1}{2}$ a pound for making, a can of milk will yield 48 cents net worth of butter, allowing 5 cents per can for skimmed milk and deducting 18 cents for care and delivery, leaving a net of 35 cents for 120 pounds feed required to produce it. Providing the cow has not missed a milking she has given 540 gallons, 5,157.5 pounds of milk in six months. Her owner is remunerated at the rate of \$10.83 per ton if sold on Chicago market, or \$5.82 if taken to the factory or home market, making no allowance for any depreciation in value of the cow.

In the beef line the farmer has the markets of the world. It is true the beef producer is governed by the rise and fall of the markets, still he is more independent as regards the time and how he shall market his product.

It is often said the farmers of this State can not compete with our western sister states in the production of meat. To estimate the value of feed fed to beef I will take an individual animal the same as with the dairy. I will show what I know to be a fact at the present time. I will give my figures on the results of feeding 130 head of heifers this winter. They averaged November 1,700 pounds at a cost of \$2.60 net. I will commence with a heifer, as this is the class of cattle I have been feeding. Taking an individual animal she will consume, after being once placed on full feed $\frac{1}{4}$ of 134 pounds of corn and 5 pounds of coarse fodder to the hundred pounds.

live weight, making a gain of 75 pounds per month, and at the same time produce 33½ pounds of pork per month from the offal; 8 quarts or 14 pounds of corn, 5 pounds coarse fodder or 19 pounds corn and fodder per day, or 1,140 pounds in sixty days. Then this heifer sold at 85 cents per hundred advance, or \$5.95 advance on the purchase price, she having gained 150 pounds, at \$3.45 per hundred, making \$5.17 gain, and 65 pounds of pork at \$3 per cwt., \$1.95, making a net gain of \$13.07, less 1 cent per day for care, leaving a net gain of \$12.47 for 1,140 pounds of feed, which amounts to \$21.88 per ton. Thus it will be seen that feed fed for milk for Chicago market is valued at \$10.83. If taken to a factory at \$5.82 and if fed to beef is \$21.88 per ton, thus showing a gain of \$11.05 per ton in favor of beef above Chicago market, or \$16.06 per ton.

I have shown that it requires 120 pounds of feed to produce a can of milk, and have also shown that 120 pounds feed will produce 21.8 pounds of meat at the value of 3 cents per pound, making 65½ cents for 120 pounds of feed, exactly what received when fed for milk, without making any allowance in the improvement in quality of the stock from what they were when starting.

When you are all aware that every hundred pounds added to an animal improves its quality and value very materially, and the rule for feeding hogs, 5 pounds of corn, will produce one pound of pork.

In conclusion, I will say that I have tried to deal with this matter just as it presents itself to the average farmer, without taking any extreme advantage of certain individual animals, which is usually taken and published in our rural magazines by some individual for his commercial interest, who has a certain breed which he wishes to advertise.

I do think, taking the dairies throughout the county, that I have overestimated the quantity of milk they will produce. This being the case, I have allowed them a greater ration, perhaps, than they should be charged with.

I hope that I have been able to throw some light on a subject that has agitated the minds of many farmers for some time.

OUR FRIENDS THE BIRDS.

By Ada C. Sweet.

Of the thousands of wild birds who are flying over head, hurrying on their trackless way towards their homes in the north, this belt through the northern half of the temperate zone is the real home, even counting all their migrations, so orderly to them, so mysterious to us.

Here they build their nests and bring up their young, and where the children are born and bred, there is home, whether the parents have wings or not. Perhaps this home feeling is what makes the song of the robin so cheery and full of delight when he sings on the bare bow those cold March mornings.

Hope is high in the hearts of these fearless voyagers of the air, as they wing their way northward. What is it that has given them this brave confidence we can not know, but it is a confidence which man has sorely abused and betrayed, but not at all succeeded in destroying. Year after year we kill mercilessly the parent birds, and if we do not kill, we leave their young in the nest to starve. And yet many escape their barbarous persecutors, go south with the waning of summer and return to us, blithe and joyous, in the spring.

What a record of destruction we have made in this part of the world during this closing century. It is true we have developed our country into a rich and powerful nation, and that we have created vast wealth, and given a home to millions of free men. Relentlessly, though, have we waged war on nature and oftentimes with a blind recklessness which to future generations will look like madness. Our magnificent forests have been swept from the earth, and now vast tracts of farm lands suffer from drought in consequence, while the most beautiful feature of the new world landscape has been ob-

literated. The large game of the United States has been cruelly and needlessly destroyed. The vast herds of buffalo which roamed over the West are gone; the deer, elk and moose are almost destroyed, and hunters scour their haunts to kill if possible the last antelope and mountain sheep.

The mountains and plains in the far West are already lifeless save for the prairie dog and an occasional coyote, and in the East, Middle and Western States, originally covered with trees, with the forests have gone the squirrels, coons and woodchucks, all beloved of boys; and the streams have dried up, so that even if they had not all been slain the mink, marten, beaver, otter and musk-rat would have no place to live.

Of all the joyous and beautiful animal life which swarmed upon this belt of our continent not a century ago, the birds alone remain; that is, those which all the energies of man have not yet succeeded in destroying or driving away. The great flocks of wild pigeons which used in spring to darken the sky on their flights north, have disappeared, and now it is not known where a passenger pigeon can be found.

Every one who loves nature has remarked the rapid disappearance of our song birds during the last twenty years. Blue-birds, orioles and meadow-larks, song sparrows, bobolinks, robins and thrushes they are, but not in such numbers, or any way near such numbers as most of us were accustomed to see and hear a few years ago. Our trees are beginning to suffer, both fruit and shade trees, from the onslaughts of insects, for the little guards nature placed to exterminate these pests and blights of the trees, are but a few of them left to do duty. Our country, like Italy, is becoming a prey to the plague of insects, and for the same reason. We are destroying the insect-eating birds, just as the Italians did, but without the excuse of the hungry Italians who eat the birds they slay, stopping not their hand even at the throat of a nightingale.

All over the world the slaying of wild birds is going on. Who is responsible for this senseless and harmful slaughter?

First, we must confess, are to blame, women.

Women, because they wear the dead birds or their wings, or heads, in their bonnets and hats, and for that purpose the birds are killed. All over the world every kind of bird is being trapped and killed because women want to wear their bright feathers, either natural or dyed! Millions are killed every year for the milliners. The hunters go out systematically to kill every bird they see, and as all birds' plumage is brightest in its nesting time, they are killed then, and their young are left to die in the nest. That causes the birds to disappear even more rapidly than they would if killed at any other time.

Now of course, although women wear the bodies and plumage of birds who have been killed for hat trimmings, they do so through thoughtlessness and ignorance of the real facts which lie behind these delicate and rainbow adornments. At first thought, it does not seem as if a fashion of dress could be such a serious matter, involving the destruction of the wild bird life of the world, but it is settled by statistics, the statistics of trade, as well as by common observation that this is the fact.

Nothing but a settled determination on the part of women that they and their daughters, and all their children shall cease from wearing as decorations wild birds, or their plumage, can save our friends to us, and to the coming generations.

There is no serious objection to the wearing of the feathers of domestic, game, or any birds used for food, or to those of the ostrich, which is raised for its plumage. These birds are protected during the breeding season, and their young cared for. The wild birds have nothing between them and the hand of destruction.

Wild song birds are protected by law in Illinois, and in nearly every State of the Union, but the laws are never enforced. In Illinois a fine of \$5 or imprisonment is imposed by law upon any person who kills a singing bird, an exception being made only in favor of the owner of the premises upon which the bird is killed. I never heard of an arrest under this law.

If women cease to wear dead birds, or parts of birds involving their death, two-thirds of the destruction of bird life will cease at once; that is, if women declare and live up to their determination to refuse to wear the plumage of any wild or singing bird.

This decision will have to be clearly declared, and well lived up to for some time, for the importers, dealers and hunters will be slow to believe that at the behest of fashion in a few years women will not again appear as they did in 1896, in all kinds of feathers. A little more than ten years ago, the bird wearing fashion was at its height; there was some protest, Audubon Societies were formed, and after a year or two the fashion died out; that is, in its worst form. Last fall it reappeared in the most objectionable manner, hats being loaded down with dead birds, and now a new crusade is under way. Unless women make a determined stand, and keep up the crusade against the bird-wearing fashion year after year, the importers will, within a short period, begin to get ready for the next appearance of the bird wearing plague, and in time again hats will come out some fall covered with birds. A few more such waves of destruction and the song of the blue-bird, the robin and oriole will be a forgotten joy in this round world.

Next to women, must be counted as destructive forces against birds, boys. The hand of the ordinary boy seeks a stone instinctively when he sees a bird. This must be changed, as in the case of the bird-wearing women, by education, thoughtfulness and self-denial. With a little teaching boys, as well as women, can be made to love birds, and to find delight in watching them, and in knowing all about them. But no boy can be made to understand his duty towards the birds while his mother, or his teacher, wears their dead bodies on her head!

There is too much encouragement, it seems to me, in some schools, of the murdering of birds ostensibly for purposes of study, and I also think that so called "collectors" of birds, their nests and eggs, are too careless, often of bird life. Study the living bird whenever this is possible, would be the first commandment I would lay down for the student of birds. I confess to a hearty dislike of the average collection of birds, butterflies, or other dead things, killed to make a vain show for some half-fledged boy or girl. It is a beautiful, life-giving experience to study the flower on its stalk springing from the ground, the fish darting about in the clear water, or the bird on the wing. It is worth much to learn to withhold the grasping hand. People have consuming desire enough for possession and selfish enjoyment. Let the boys and girls be taught to love and admire the beauties of natural life without capturing or killing joyous and free living creatures, just for the questionable pleasure of ownership and display.

Third in the list of enemies to our native singing birds must be put that imported nuisance, the English sparrow. It has been shown beyond doubt that the English sparrow drives away from the places he frequents, our most charming singing birds, such as the blue-bird and robin. The agricultural reports declare that the English sparrow eats up thousands of dollars worth of grain every year, and that as a destroyer of injurious insects he is a complete failure. Our own birds, which are helpers to the farmer in that they destroy millions of insects every year, the harmful and wasteful English sparrow drives away. While no one possessing good taste could advise the wearing as hat trimmings of the English sparrow, it may be said that these birds, according to good authority, make excellent substitutes for the reed-birds, being what epicures call "very good eating."

They should be eaten up at once, if that be true, to the general relief of the American people, as well as of American birds.

A fourth enemy of birds might be named in the man who cuts down the trees. Our wild birds can not and will not live altogether on telegraph poles and wire fences. They need trees and shrubbery, and the farmer who forgets that will have his crops eaten by insects and English sparrows, and no birds' songs will wake him mornings.

Discussion opened by Jonathan Periam. In the presentation of this able and concisely written paper, we are much indebted to the life-long study of philanthropy by the eminent speaker. There is little to be added, except to call still further attention to the habits of birds as benefactors of all who till the soil. There is one point, however, to which I want to call attention. That is the fact that all birds of every known species feed their young on insects, or on other animal food, with one exception—that is the wild pigeon. This bird softens its vegetable food in its crop, reguigitates it, and thus feeds its nestlings. The killing and driving away of wild birds has caused man to feebly counteract the damage to crops by insects, by various artificial means, among these poisoning.

Prof. Burrill and others added testimony as to the benéfaction to the human race by birds.

THE IDEAL FARMER'S HOME.

By Mrs. Robert Eaton, Joliet. Read before the Will County Farmers' Institute.

To describe the ideal home is no easy or irresponsible task; not easy, because it requires an intimate knowledge of the harmful as well as the helpful influences of the home; not irresponsible, because any false idea might work irretrievable harm.

The home is the safeguard of the nation. When vice, impurity and corrupting influences once creep into the sanctuary of the fireside, then, and then only, is it possible for foreign enemies to prevail. The greatest danger of a people, as of a person, lies within. Rome, once the proud mistress of the world, fell from inward corruption, while the hardy Swiss have, chiefly by means of their virtuous, pure and simple home life, beaten back the armies of Europe and defied all attempts to subjugate them. Should we not, therefore, learn from history that our protection as a nation lies most especially in the preservation of the purity and integrity of the home.

Before going further, it might be well to ask what the country home has done to establish and maintain our institutions, our literature, our science and our religion.

Go search out the leading men of our cities, inquire into their early life, and you will find that the great majority of them came from the farm. The pulpit, the bar, the editorial chair and the university abound with men who spent their boyhood upon the farm. The president of one of our large New England colleges often when a boy went to town with one suspender and no shoes, but today he is without a superior in educational attainments and executive ability.

Further, the great farming class is intelligent, law-abiding, sturdy and industrious, not borne hither and thither by waves of popular discontent, but showing sound judgment and common sense.

Whence these elements of strength and power? How can they be further developed? What new elements must be added to complete the ideal home? Let us consider the answer to these questions in detail, for our ideal home must be a practical reality within the reach of all. For this reason I have chosen to confine myself to something that will, I hope, benefit everyone, rather than to building a beautiful but impractical castle in the air.

Let us begin with the outward condition of the ideal home. In the country land is not expensive, therefore there is no reason why any farmer's home should be without a well-kept lawn, or why the buildings should be crowded together in a disorderly condition. Every farmer's home should have a lawn, flower beds tastefully arranged, numerous shade and fruit trees, and carefully laid-out walks. Such requirements are certainly within the means of every farmer; the cost is small and they add immeasurably to the appearance and attractiveness of the home.

The ideal home must be beautiful both within and without. Beautiful, I said, not necessarily palatial. That beauty I mean when the occupants of home have taste and refinement. The smallest cottage can be, and often is, made more beautiful and attractive than many a spacious residence gorgeously adorned and sumptuously furnished. It does not require an extravagant outlay of money to have a beautiful home.

In our ideal home we will find nearly all the conveniences of modern architecture; bath rooms, hot and cold water, furnace or steam heat should be found in all farmer's homes where possible. The first cost will be slightly greater, but this additional expense will be more than balanced by the decrease in doctor's bills and in the good health of the family. Many a severe cold or fatal illness has been contracted from going out in bad weather to get a pail of water, or from going from a warm room to a cold chamber.

I maintain that farmers' wives shall insist that the house be built in such a way that they can do their work most conveniently and have the greatest amount of comfort in the home. Too often the husband is indifferent or thoughtless of his wife's comfort, possibly on the ground of economy, while he spares no expense in making his own work as easy as possible. The mothers and daughters should see to it that the house is tastefully furnished, but not so elaborately that the children are always to be kept in the kitchen for fear of soiling the carpet with their shoes or of marring the furniture.

Let us now consider the inner condition of our ideal home. Purity of morals, purity of religion and purity of society must prevail. Where is this most likely to be found? In the hustle business methods and social strife of a great city, or in the peaceful country home removed from the temptations, allurements and excitement of city life? Our ideal home must be pure. No bad literature, no profanity, no drunkenness, no quarreling or gossiping will have place there.

Again, contact with nature tends to produce purity. The country boy knows the habits of the birds, watches the growth of the flowers, and follows the winding course of the brook. Nature, elevating and transpiring, should teach him purity and righteousness. The same can be said of the country girl, breathing, as she does, the pure air of heaven, and away from the presence of vice.

There is nothing on earth so beautiful as the household on which Christian love forever smiles and where religion reigns a counselor and a friend. Home should be so truly home, the weary, tempted heart could turn toward it anywhere on the dusty highway of life to receive help and strength.

The members of our ideal family must be educated, not necessarily trained in all the graces of the schools, but possessing that culture which gives enjoyments in the best literature and that refinement of taste which lends beauty and charm to the home. Education must therefore be practical, refining and uplifting. Hence the farmer's boy or girl on finishing school life should be prepared to earn a livelihood. It is the chief duty of nearly every one earning a living—to work. How can one work successfully without previous training? Can a woman keep house and a good-natured husband, if she does not know even how to boil potatoes, to say nothing about the mysteries of breadmaking? How can a boy handle a plow successfully whose chief ambition has been to carry a cane properly? The dull boy who can not prate science but can drive an ox-cart as an ox-cart ought to be driven, or the dull girl who can not finger the piano but can rightly broil a beefsteak, is, in the eyes of all true taste, a far more sightly and attractive object than the most learned and accomplished good-for-nothing. Not that education and refinement are not in themselves good things. Any form of honest service, however plain and humble, has manliness in it, and is therefore a higher style of gentility and a sounder basis of self-respect than any, even the proudest form of mere social ornamentation. Too often we worship the courteous air and fashionable dress, while we do not take into consideration the true principles.

Hence I maintain the children of the ideal home should be properly educated according to a true standard; that they should be taught to work, to read

and to think, to be men and women of culture and power. Brains pay as well and are as interesting on the farm as anywhere. Nobility of mind or character is not a whit less noble in the wheat-field than in the counting-room or at the bar. A splendid woman graces a farmer's home quite as much as a merchant's. Children are just as beautiful amid things of nature as of art. It is true that man is a social being, that he is best developed by mingling with others. Too often it happens that there are no near friends or neighbors, and visits are of rare occurrence. The result is that manners soon grow lax, and the mutual treatment of friends and acquaintances is anything but refined. Not that I advocate the hollowness and artificiality of society, so called, with all its sham and sin. What I mean is, there should exist that social relation which our nature demands.

In our ideal home there must be gentleness, kindness, thought for others, and courteousness of manner and speech which we all recognize and admire. There must be social intercourse of family with family. Besides producing more polished manners, such social relation gives the recreation necessary, and what is more, it would keep the boys and girls from flocking to the city in order to obtain society. Our ideal home should be made sufficiently attractive to satisfy that longing and to gratify the social instincts. Here is good work for mothers and daughters; always to be courteous and kind, and to demand the same treatment from others; for without love and affection there can be no real home. There may be all the splendor and magnificence that wealth can purchase, but unless love is enthroned in the hearts of parents and children, there is no home.

Music is of inestimable value as a home enjoyment. We know of no more pleasing and interesting spectacle than brothers and sisters playing and singing together, while the parents sit delightedly by. Increase fireside pleasures and you will add to the happiness of your home.

In our ideal home there must be system, order, thrift and economy; but what farmer's wife does not know the meaning of that word economy. It is expected of her to excel in this if she should fail in all else. There is more practical talent in management and care required of farmers' wives than any other class of women. It is thought by many that farmers' wives are overworked. It is probably true that woman everywhere is overworked. The trouble is we make life and its work too complex and artificial; not simple enough and natural enough. The true way to reform and make our work easier is think, talk and read more of these things.

It is a well-known fact that there are not a class of women on our American continent that can excel our farmers' wives and daughters in the art and skill of cooking (if you hesitate to believe this statement, ask your city cousins); and why should she not excel when she has so much at her command that is fresh and sweet? But why have six kinds of fruit at a meal when one is sufficient? Why have many courses when one or two would be better for us?

And, again, our ideal home must be governed. All true government is self government, and the unruly member, the tongue, is the first one in the family to put under control. Many a man will strike his wife with this tongue, blow after blow, when he would not strike her with his hand; and sometimes wives are tongue-strikers who would not strike with their hands. This voice government must begin with the parents if they would be governors of home. Children who hear their parents scold and fret at each other do not get the obedient spirit or harmonious disposition from the atmosphere of their homes. Oh, that men knew the power there is in their voices for every day and home uses; not in their thunder tones, but in the subdued cadence of manly tenderness and good will. All the sweet poems that have ever been written on kind words have not told half their power.

Daughters, remember your first duty is to make mother happy. Lighten the burden of housekeeping by assuming part of the responsibility and more of the work. A sister holds a peculiarly influential place in the home. She exerts an influence whether she tries to or not. She ought to know she is in the household for a wise and good purpose.

To sum up, I would say that our ideal applies to all homes. That the external appearance of the home should be neat and the internal arrangements and furnishings comfortable and tasteful. The education of the children should be practical, at the same time ennobling and producing a love for the best literature. Social life should be encouraged and the treatment of all should be refined and courteous. Purity, love and religion should mellow the affections.

May this ideal be realized in every home.

AGRICULTURE AT THE UNIVERSITY OF ILLINOIS.

The University of Illinois is distinctly a State institution. Founded upon a generous and perpetual endowment from the United States government, it has been greatly strengthened and its scope vastly broadened by liberal aid from the State. It is the only college or university of the State that enjoys the patronage of the general government or that is supported by State taxation. It thus occupies an unique position in that it is supported by the general public, and that is why it is pre-eminently the institution of the people; not of part of the people but of all the people, for everyone who pays taxes contributes his share to the mighty whole that shall make for the education of his neighbor's child and his own.

Such an institution of learning should have regard to the needs of all the people, particularly to what are known as the common people; for was it not founded and supported at public expense in order that higher education might be as free as air, alike for rich and poor?

Until now, about one-half of our people have been occupied upon the soil. With better future methods a larger proportion can be spared to engage in other useful industries, but always a large share of the population will find its occupation in the tillage of the land. It is imperative, under our form of popular government, that this large proportion of the whole people be not only well trained in the art whereby they are to win sustenance for themselves and others, but that the instincts of morality and refinement shall be present among them and that they be well grounded in the principles of good citizenship.

To this end all the people must be educated in the best sense of the word, and the more complex our conditions become and the higher our civilization attains, the higher our education must be. It must be diffused among the people, wholesome, healthful, stimulating, cleanly and life-giving, like the air from the mountain or the water from the crystal spring.

Recognizing all of this, among the many things this great University is doing, she has not forgotten to exert her energies for the benefit of agriculture and its people. For this work in agriculture the University maintains two organizations—an Experiment Station for investigation and a College for Instruction, each equipped with a full force of specialists. In the plainest terms possible I shall treat of this great work for agriculture at the University of Illinois.

GOVERNMENT ASSISTANCE TO AGRICULTURE.

The First Morrill Act.—July 2, 1862, is a memorable date in educational literature. On this date Abraham Lincoln approved a bill that his predecessor had vetoed and this bill provided that there should be ceded to each state public lands to the amount of 30,000 acres for each member of Congress to which it was then entitled; that these lands should be sold and the interest on the resulting fund applied to the founding of "at least one college, where the leading objects shall be, without excluding other scientific or classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts." Under the benefit of this act, in 1868, Illinois established a college, which by State aid rapidly developed into a great university.

The Hatch Act.—On March 2, 1887, a bill was approved that has been far-reaching in its consequences. It appropriated from the United States' treasury the sum of \$15,000.00 annually to each state that had founded a college in accordance with the provisions of the act of 1862. The first endowment was for instruction, but this last was "to aid in acquiring and diffusing among the people of the United States useful and practical information in subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

This was the origin of the Experiment Station, which has proved so useful to the people and which is doing more than all other forces to demonstrate the importance of accurate knowledge of the principles of agriculture and to stimulate the desire for agricultural education.

The Second Morrill Act.—On March 30, 1890, Senator Morrill's second college endowment bill was approved. This provided a cash annuity to the several institutions founded under the act of 1862, beginning at \$15,000.00 and increasing \$1,000.00 each year, finally resting at \$25,000.00.

None of these government aids could be used for lands or buildings, except that five per cent. of station funds may be devoted to repair of buildings. It was not the intent of the law to add to the permanent value of buildings of any state, but to furnish such aid as should secure free colleges in the one case, and in the other general but coördained effort at discovery of principles underlying agricultural practice.

The states have generally availed themselves of the privileges of all these acts, and, with varying degrees of success, have established colleges and experiment stations. I will treat of both, but, for convenience, of the latter first.

OBJECT AND PLAN OF EXPERIMENT STATION WORK.

To acquire and to disseminate knowledge of agricultural affairs is the plain and only purpose of the Experiment Station. It has no thought of imparting to anyone any part of what may be called the

established stock of knowledge. It is left for that to make its way to the people through the ordinary channels of books and papers. Its office is not to instruct the student, but rather to explore new fields and to furnish the practitioner the latest discoveries and contributions to knowledge touching the business of agriculture.

Quite generally in the newer states the energies of the station are largely directed to discovering what crops or varieties are best fitted to their conditions, which are too new to be as yet well understood. By this means many sections of the Union have come far more quickly into profitable and successful practices than would have been possible without central and organized inquiry.

In the older states, however, questions of soil management, of rotations looking to conservation of fertility, and often fertilizers and their adaptation to special crops have constituted chief lines of inquiry. In general, each state investigates, or attempts to investigate, those problems in which it feels chiefly concerned and in which there is at least a hope of arriving at conclusions.

Long ago all plans were abandoned which looked to one man to conduct experiments along very many lines. It is found that not only the limits of knowledge but the limits of the human mind require that in the business of discovery an investigator shall confine himself to a limited field and persistently dig it out, meeting failure more often than success. The work is therefore done by specialists, who constitute a force called the "staff." These people actually do most of the work themselves, for it was long ago learned that investigation can not well proceed by proxy; that the slightest circumstance may vitiate an experiment or reverse its conclusions, and that therefore the work of an individual in investigation is pretty nearly limited to what he can do himself, barring of course certain common labor of cultivating crops or caring for animals. Even in this the uninitiated are hardly prepared to realize the number and character of things that may be introduced to ruin all the work. Eternal vigilance by an expert who knows what he is after is the only guarantee of reliable results.

VALUE OF NEW DISCOVERIES IN AGRICULTURE.

Not until recently has agricultural practice commenced to seek a scientific basis. I mean by this that habit has for the most part heretofore made the rules of practice in agriculture, and that this habit is often based upon superstition, or upon tradition or ancestral fashion, and that all such rules of practice are empirical rather than philosophical; that they rest upon belief rather than upon fundamental relations among nature's laws. We have only to remember how recently we consulted the phases of the moon in the important business of killing hogs and planting seeds; how we sought never-failing streams underground by aid of the peach switch or the willow twig in the hand of some skilled (?) neighbor; how we put hot horse-shoes in the chimney to scare the witches out; how we studied the

zodiac and the unfortunate man in the almanac, and how, in spite of God's promise that everything should bring forth after his kind, we have wisely debated whether after all chess is not degenerated wheat.

It is only when the mind dwells for a moment on these things which were guides to our grandfathers that we come to realize not only what a mass of error was to be removed before agricultural pursuits could be founded on sound principles, but also how much the popular mind needed freeing from the cramping and dwarfing influence of hereditary superstition. It is only then that we realize the superhuman undertaking in attempting to reduce agricultural practice to an orderly basis. It would have been easier if the real facts and principles had been in possession of man, but from the first it has been an attempt to displace habitual methods and beliefs in which the people have faith with others resting on a basis of fact, but for the greater part as yet unknown and untested.

Mistakes have been made, but in no line of human advancement has progress been faster than in this. The experimenter is no longer an object of ridicule, even in his failures, for no man can be always right in a new matter. Though Sir John Lawes and Sir Henry Gilbert were for years the butt of ridicule in their own neighborhood, yet the world has accepted their conclusions and thousands of men practice rotation of crops that are ignorant of the very name of the man to whom they owe the idea. Many of these same neighbors are today working into their own practice many of the principles unearthed during the years when they wisely shook their heads and wondered why Sir John had gone clean daft.

The world has gone by this already. It no longer scorns or ridicules him who is after a new truth. It is so ready and so anxious to make use of it that the expectant, hungry attitude of the public today amounts almost to credulity, whether the field be engineering, physics, philosophy or agriculture. All this is best realized by him who has conducted the correspondence of an experiment station since the remote period of 1888, and let me assure the reader the change is most cheering. Then there was doubt, egotism, and often contempt; now there is a business-like determination to know the facts, from whatever source they may be had, and this attitude is working a radical change and establishing a new basis of agriculture.

NATURE AND COST OF EXPERIMENTATION.

From the nature of the case, an attempt to discover a new truth or principle—even a new fact—is much like groping in the dark for something, you know not what, and often with no certainty that anything is there. Often an experiment can be so planned as to give definite results, one way or the other, and thus settle something with certainty; but far more frequently, in fact generally, there is much doubt and uncertainty; it is neither the one way nor the other, but different, —showing that, while there is likely something there to be found out, you have adopted a wrong theory of procedure and it must be done over from another starting point. To be sure, now

and then investigators stumble upon some important fact seemingly by accident, when all the world holds us its hands and cries "Behold how easy it is to be an experimenter and discover things." But far oftener he chases phantoms that like the will-o'-the-wisp elude him on the point of capture.

All this is costly, and will more than eat up the margin of profit in any man's business. Therefore it is done at public expense, that all may benefit by the labors of a few who are not hampered too severely by the financial outcome. The thing itself must be financially profitable or it is useless, but the method and the labor of its discovery may have consumed thousands of dollars, and yet have been a good investment of public funds. This distinction between the economic value of a new principle and the cost of its discovery must always be made, for they are all bound to be costly in their discovery and beyond the reach of private individuals, unless they are minded to spend their wealth in this manner. Besides, after the station and the public shall have done their best, there will yet remain many a local question unanswered whose determinations must be a matter of individual effort and of private expense.

PUBLICATIONS AND CORRESPONDENCE.

By law, at least four reports, called bulletins, must be issued and circulated each year, giving to the world free of cost the results of the labors of the station. Besides this, the offices of our experiment stations are rapidly becoming bureaus of information for a constantly and rapidly increasing clientage. All manner of questions that human ingenuity could seem to devise come up for advice or answer, and if any man has a feeling of scorn for the class of questions that are occupying the minds of our farmers, let him sit by the desk and read these questions. He will speedily find that not one in a thousand fails of being a sound question, honestly asked, and that will moreover require for the most part the best ability at command to answer; more than that, many of them can not be answered, not because they are trivial or unimportant, but because they are beyond the present state of knowledge. This exhibits a most significant fact,—that our best farmers are thinking well out along the border line of knowledge, ready for new facts when they shall appear, that they may make use of them. And they are not passive in the matter, but active, as their correspondence shows.

Each issue of our bulletins goes to sixteen thousand men, every one of whom has been placed on the mailing list by special request. This means something. It shows an appetite for facts, and the appetite is growing. That it will shortly bear fruit in a public desire for agricultural education requires no spirit of prophecy for its assertion, only a fairly reasonable interpretation of the signs of the times.

So strong is the demand growing that the station has difficulty to free itself from the pressing request for standard information. "Issue a bulletin on this matter, we want something reliable," is a common form of request. This means nothing less nor more than

a request that the station write and publish books, which it can not do. In a few cases where calls were unusually great on some special matter, we have issued, in answer to correspondence and for limited circulation, what we call a "circular." It is designed, not to report our work as a station, but to state very briefly the ordinary facts as at present known, together with reference to books and standard sources of information. The station, as a station, must not recast present knowledge; it must not write books, or the business of investigation will languish, because any man can write a book that would be vastly more acceptable than any bulletin that he might issue upon his own investigation. Contribution to the store of human knowledge is the slow and tedious business of the experiment station, and the publication now and then of a new fact is the pleasant reward of the honest worker groping about most of the time in the dark.

GROWING POPULARITY OF STATION WORK.

Only the workers themselves realize the mighty change since 1888. A whole vocabulary of words is rapidly becoming obsolete. "Kid-gloved farmers," "book farming," "scientific farming" (with a sneer), "practical" as opposed to "scientific," and "science" and "theory" as synonymous with the unpractical, are terms already nearly out of use. Egotism has given place to eagerness, and incredulity to faith. If a man knows a thing, his neighbor wants that knowledge; if a man needs a thing and does not know it, in these days he straightway seeks a man who perchance may have found it out, and learns of him. Who shall say what a few years more of this will do, or what will be its influence upon the appetite for agricultural education?

THE WORK OF THE ILLINOIS EXPERIMENT STATION.

The work of the Station is conducted under the following heads, with a specialist in charge of each:

Animal husbandry, agricultural physics, dairy manufactures, horticulture, chemistry and veterinary science. Besides this, much valuable matter in economic entomology is obtained from the State Entomologist, who is the consulting entomologist of the Station. There is also an office force for assisting in the business of keeping records, conducting correspondence, mailing bulletins and reports, and in caring for the numerous exchanges.

There is perhaps no better way of putting the reader in possession of what has been the actual work of the Station than by appending a full list of all the bulletins that have been published to date:

Bulletin 1.—The Station; Its Origin; Organization and Regulations; Fields of Investigation; Plans for Immediate Work.

Bulletin 2.—Ensilage.

Bulletin 3.—Field Experiments with Oats, 1888; Germination of Grass and Clover Seeds.

Bulletin 4.—Field Experiments with Corn, 1888; General Conclusions and Suggestions; Garden Experiments with Sweet Corn, 1888.

Bulletin 5.—Grasses and Clovers; Effect of Ripeness on Yield and Composition.

Bulletin 6.—A Bacterial Disease of Corn.

Bulletin 7.—The Biology of Ensilage; Field Experiments with Oats, 1889.

Bulletin 8.—Field Experiments with Corn, 1889; Summary of Results; Garden Experiments with Sweet Corn, 1889.

Bulletin 9.—Milk and Butter Tests; Milk Tests; Churning Sweet Cream: The Comparative Value of Corn-fodder and Ensilage in Feeding Yearling Heifers; Analysis of Corn-fodder and Ensilage made in Connection with Foregoing Experiment; Value of Pasture and of Grain Ration with Pasture, for Young Cattle: Experiments in Progress. May, 1890.

Bulletin 10.—Investigations of "Milk Tests."

Bulletin 11.—Experiments with Wheat.

Bulletin 12.—Field Experiments with Oats, 1890; Milk and Butter Tests; Cream Raising by Dilution; The Hessian Fly; Canada Thistles—Their Extermination.

Bulletin 13.—Field Experiments with Corn, 1890; Garden Experiments with Sweet Corn, 1890; Pop Corn, Tests of Varieties; Growth and Increase of Dry Matter in Corn; Weight of Ear Corn per Bushel of Shelled Corn.

Bulletin 14.—Milk Tests; Methods of Testing Milk; Automatic Pipettes for Measuring Acids; Chemical Analysis of "Germ Meal" and of "Oat Dust Feed."

Bulletin 15.—The Fruit Bark Beetle; Experiments with Grass Seeds, and with Grasses and Clovers; Uses of Fungicides upon the Apple, the Potato, and the Grape.

Bulletin 16.—Experiments in Pig Feeding; Composite Milk Samples Tested for Butter Fat: Automatic Pipette for Measuring Acids.

Bulletin 17.—Experiments with Wheat, 1890-91: Daily Variations in Milk and Butter Production of Cows.

Bulletin 18.—Dairying Experiments.

Bulletin 19.—Experiments with Oats, 1891: The Chinch-bug in Illinois, 1891-92.

Bulletin 20.—Field Experiments with Corn, 1891.

Bulletin 21.—Horticulture; A General Report; Corn Crossing; Sweet Corn, Thickness of Planting, 1891; The Late Season and the Corn Crop.

Bulletin 22.—Experiments with Wheat, 1891-92.

Bulletin 23.—Experiments with Oats, 1892.

Bulletin 24.—Variations in Milk.

Bulletin 25.—Field Experiments with Corn, 1892.

Bulletin 26.—The Forest Tree Plantation.

Bulletin 27.—Some New Points in the Manipulation of the Babcock Milk Test.

Bulletin 28.—Grapes; Test of Varieties; A Grape Disease; Grapes, Method of Training.

Bulletin 29.—Orange Rust in Raspberries and Blackberries; A New Factor in Economic Agriculture.

Bulletin 30.—Blackberries and Raspberries, Variety Tests and Management.

Bulletin 31.—Corn and Oats Experiments, 1893.

Bulletin 32.—An Acid Test of Cream.

Bulletin 33.—The Chinch-bug in Illinois, 1894; Alkaline Tablets for Testing the Acidity of Cream; Certified Tests of Dairy Cows.

Bulletin 34.—Experiments with Wheat, 1893-94; Experiments with Oats, 1894.

Bulletin 35.—The Russian Thistle in Illinois.

Bulletin 36.—Stock Feeding in Illinois.

Bulletin 37.—Corn Experiments, 1894.

Bulletin 38.—Experiments with the Muscardine Disease of the Chinch-bug, and with the Trap and Barrier Method for the Destruction of that Insect.

Bulletin 39.—The Russian Thistle and Some Plants that are Mistaken for It.

Bulletin 40.—Potatoes, Experiments of 1892-3-4, with a Statement of Some Results Obtained at Other Stations; Fungus Diseases of the Potato; An Experiment to Prevent Scab and Leaf Blight of the Potato.

Bulletin 41.—Experiments with Wheat, 1888-95; Experiments with Oats, 1888-95.

Bulletin 42.—Corn Experiments, 1895.

Bulletin 43.—Composition and Digestibility of Corn Ensilage, Cow Pea Ensilage, Soja Bean Ensilage, and Corn-fodder.

Bulletin 44.—Insect Injuries to the Seed and Root of Indian Corn.

Bulletin 45.—Varieties of Apples; the Apple Orchard.

Bulletin 46.—Experiments with Corn, 1896; Attempts to Grow Crimson Clover; Improvement of Retentive Clays; Drainage of the So-called "Hard Pan" Lands of Southern Illinois; Importance of the Physiological Requirements of the Animal Body; Results of an Attempt to Grow Cattle Without Coarse Feed.

Special Bulletin.—Smuts and Their Prevention. •

Bulletin 47.—Broom Born Smut.

Bulletin 48.—The San José Scale of Illinois.

Besides these printed reports, there are in the office volumes of notes upon matters not yet sufficiently determined to warrant publication. The Station is also hampered by lack of funds for printing, so that much material simply lies waiting for an opportunity to print, whenever that may be. To print and distribute an average bulletin of an edition of seventeen thousand costs about three hundred dollars, and the size of the list is rapidly increasing. Fortunately, the bulletins of the stations are transmitted through the mail free of cost, and the estimate here made is for printing and envelopes only.

In the unpublished notes is much valuable material awaiting⁷ finished investigation that shall confirm or deny: there is some that will likely never be of value, and there is much that is negative.

From the published reports it will be seen that along the animal line the principal work has been with questions of feeding and with variations in milk. Just at present the general subject of variations in efficiency of the animal body as a machine is under study, as well as certain experiments in breeding.

[The Illinois Station can justly claim to have done more experimental work with Indian corn than has any other institution on earth. The present season it raises some thirty varieties, cultivates at all depths from nothing to six inches, is cultivating one hundred variations of the same variety, and has demonstrated that absolute sterility may appear in the third generation of inbreeding. It is raising many selections looking to uniformity of type, and is the first to note the wide variation in chemical composition and to test the question as to whether these differences can be fixed by selection.]

Exhaustive experiments are in progress as to variations in neighboring areas of apparently similar soil, as to the effect of sub-soiling, and as to the length of time before clover sickness will appear in prairie soils.

This is the only station in the Union to test, the present year, the efficiency of "nitrogen" as an inoculation for various leguminous crops.

More than fifty different mixtures have been used as protection against the depredations of insect or fungus enemies on trees and fruit. A remedy has been discovered for the smut of broom corn.

The efficiency of tile drainage for the white clay evils of southern Illinois has been thoroughly demonstrated, as well as its entire practicability. This is of great importance because of the widespread notion that the water will not make its way through these soils to the tile, and from the disposition to overlook the fact that we often drain soils to make them moist as well as to make them dry.

Space forbids anything like a description of the whole work undertaken by this Station. Much that goes for little occupies a great deal of time in the performance.

SUGAR BEETS IN ILLINOIS.

Suddenly some question of public interest arises and the Station is called upon for information. Can Illinois raise sugar beets as a profitable industry?—was the question everywhere asked this year, and six hundred farmers are growing beets for us this season to help answer this important inquiry. In a few weeks from this writing (August 27), the samples will be analyzed and the results published, which, it is hoped, will go far toward pointing out localities where this industry promises best, and—what is of much importance—detecting those where it were best not undertaken.

AGRICULTURAL SURVEY OF ILLINOIS.

An impression is common that the prairie states are uniform in contour and in soil, and that what is true of one section is substantially true for another, barring the difference in latitude. There could be no wider error. Illinois is exceedingly spotted. It has been at least twice covered by glaciers, and the retreat of the last one was tardy and shows many halting places marked by moraines. Most of the rivers of the State, except the Mississippi, the Illinois and the Fox are exceedingly new, and their valleys and the heights of land between exhibit marvellous variations. There is far more variation in soil than in season as determined by latitude; corn is planted later in Marion and adjoining counties than in the extreme northern part of the State or in Michigan two hundred and fifty miles farther north.

All this means that before anything like an accurate knowledge may be had of our agricultural conditions and possibilities it will be necessary to follow the example of other states and make a careful survey of the economic resources of the State, agricultural and geological. I can not suppress great surprise that so great a State as Illinois, agriculturally as in every other sense second to none, should have allowed so many of her neighbors to lead her in matters pertaining to agricultural inquiry and education. I feel certain that this will not continue, and that it will not be long until the industry that affords employment to so large a number and sustenance to all will receive, like other matters, particular attention at the hands of legislators.

CAREFUL STUDY OF ILLINOIS' CONDITIONS NECESSARY.

As the labor of investigation in agriculture has progressed, it has seemed more and more essential that close study of all the natural conditions should be made, not only at the outset but throughout the period of investigation. While each station is not blind to what may be called the general principles of agriculture, at the same time they are so much influenced by circumstances that all work hinges more or less upon accurate knowledge of local conditions.

ORGANIZATION OF THE EXPERIMENT STATION.

The affairs of the Station are controlled by the trustees of the University, but the work of investigation is carried on by specialists already alluded to and known collectively as the "staff." For purposes of administration there is a director working in conjunction with an advisory board.

The director is charged with full responsibility for the successful and orderly prosecution of the routine work. He is also to keep the president and the trustees informed as to current conditions and to make recommendations concerning future work and plans.

The advisory board, partly *ex-officio* and partly chosen by the trustees, is to freely advise in all matters pertaining to Station policy and work. Following is a list of the present members:

ADVISORY BOARD OF THE AGRICULTURAL EXPERIMENT STATION.

Professor T. J. Burrill, President.

From the State Board of Agriculture: A. D. Barber, Hamilton.

From the State Horticultural Society: E. A. Riehl, Alton.

From the State Dairymen's Association: H. B. Gurler, DeKalb; Isaac S. Raymond, Sidney; Napoleon B. Morrison, Odin; Professor Stephen A. Forbes; Professor Eugene Davenport.

The Station Staff is constituted as follows:

Professor Eugene Davenport, M.Agr., Director, Agriculturist.

Professor Thomas Jonathan Burrill, Ph.D., Horticulturist and Botanist.

Cyril George Hopkins, M.S., Chemist.

Professor Stephen Alfred Forbes, Ph.D., Consulting Entomologist.

Professor Donald McIntosh, V.S., Consulting Veterinarian.

George Perkins Clinton, M.S., Assistant Botanist.

Wilber John Fraser, B.S., Assistant in charge of Dairying.

Perry Greeley Holden, B.S., Assistant Agriculturist.

Joseph Cullen Blair, Assistant Horticulturist.

THE COLLEGE OF AGRICULTURE.

For purposes of instruction the University of Illinois is divided into, or rather, consists of, four colleges, viz.: Engineering, Science, Literature and Arts, and Agriculture. These are named in order of their relative number of students, although the College of Engineering enjoys by far the largest patronage; in short, it is the largest and best equipped engineering college of any state, and its reputation, on the grounds and abroad, is most enviable.

RECENT IMPROVEMENTS.

Until recently one man, struggling under the title of professor of agriculture, was expected to hold up the dignity and the standing of a whole college, regardless of the fact that the literature of his subject is but just making, that many of the supposed facts sadly need

verifying, and that the methods of both research and instruction for the most part must be discovered, tested and applied. Under these conditions this one man, without apparatus or special facilities, represented all that was distinctive of the College of Agriculture.

No man ever undertook so hopeless or thankless a job, for men cursed him for a fool if he failed to answer some question of the fifty or more breeds of live stock, or was unable to say what crop of all others should be grown on some one of the several thousand combinations of soil, climatic and local conditions that every state affords, or to specify unerringly what fertilizer or enchantment would help each particular man out of his predicament. He was but a finite being in the midst of a wilderness of truth, error and superstition. What wonder that the professor of agriculture failed, particularly as he was also generally expected not only to conduct a farm, but to "make it pay." What wonder that his teaching did not partake of the high degree of finish and superior excellence of other instructors in the same institution working in subjects that have been taught for generations, wherein facts and methods are well understood, and whose natural divisions are recognized.

The minuteness of division of some subjects that are taught is not commonly noticed. A few years ago we had in our schools a professor of "natural science." Now the subject has grown so big, the sum of human knowledge along these lines so great, that no single man could hope to master it in his lifetime if all his energies were given to learning and none to teaching. One man must confine himself to a portion only if he would hope to succeed, and today, instead of a professorship of "natural science," we have in every great institution one each of botany, physiological botany, cryptogamic botany, bacteriology; in organic chemistry, applied chemistry, agricultural chemistry; in zoölogy, entomology, physiology, physiological psychology, biology, embryology, geology, astronomy, physics, electrical engineering, etc., etc., etc. Nor are these divisions more minute than have long been established in literature, in history, and in mathematics, that in comparison are hoary with age as subjects for drill in the process of educating and developing the human mind.

[The trustees have recognized these fundamental facts and have commenced the subdivision of agriculture. In place of one man attempting to represent the entire subject, one now confines himself to questions of live stock, another to the cultivation of the soil and the improvement of crops, while a third gives his attention to the general subject of dairying and particularly to the care of milk and the manufacture of its products. Besides these chairs in agriculture proper, a fourth gives exclusive attention to diseases of animals, and all the time of one man, with a portion of that of another, is given to horticulture and fruit-raising.]

□ These five give their time exclusively to agricultural questions, and they constitute the special force of the College of Agriculture, while the general sciences and other subjects of the course are taught by the same specialists as teach the same subjects for other courses.

✱ [This division of the agriculture of the agricultural course has permitted a far higher class of instruction. The field in which one man now operates is not totally beyond his powers, and he has some chance of speaking with authority concerning his particular subject. This makes it possible for instruction in agriculture to assume a grade that will compare somewhat favorably with that of other subjects taught in the same institution; in other words, it is a long step toward making it respectable, and therefore respected. All this is greatly appreciated by our teaching force and by the students, and will in time have its effect upon the standing of the agricultural course.]

THE FACULTY OF THE COLLEGE OF AGRICULTURE.

- Andrew S. Draper, LL.D., President.
- ✓ Eugene Davenport, M.Agr., Dean, Animal Husbandry.
- ✓ Thomas J. Burrill, Ph.D., Botany and Horticulture.
- Stephen A. Forbes, Ph.D., Zoölogy.
- Charles W. Rolfe, M.S., Geology.
- ✓ Donald McIntosh, V.S., Veterinary Science.
- Arthur W. Palmer, Sc.D., Chemistry.
- Frank F. Frederick, Art and Design.
- Samuel W. Parr, M.S., Applied Chemistry.
- David Kinley, Ph.D., Economics
- Daniel H. Brush, Captain 17th Infantry, U. S. A., Military Science.
- Albert P. Carman, Sc.D., Physics.
- Henry E. Summers, B.S., Physiology.
- Edgar J. Townsend, Ph.M., Mathematics.
- Evarts B. Greene, Ph.D., History.
- Katharine Merrill, A.B., English.
- William O. Krohn, Ph.D., Psychology.
- William H. VanDervoort, M.E., Mechanical Engineering.
- Harry S. Grindley, Sc.D., Secretary, Chemistry.
- T. Arkle Clark, B.L., Rhetoric.
- Herman S. Piatt, A.M., French. [On leave.]
- Arthur Hill Daniels, Ph.D., Philosophy.
- Charles W. Tooke, A.M., Political Science.
- George D. Hammond, A.B., History. [On leave.]
- Frank Smith, A.M., Zoölogy.
- ✓ Perry G. Holden, M.S., Agricultural Physics.
- Ralph P. Smith, Ph.B., German.
- Oscar Quick, A.M., Physics.
- Edward J. Lake, B.S., Art and Design.
- ✓ Wilber J. Fraser, B.S., Dairying.
- ✓ Joseph C. Blair, Horticulture.
- Charles F. Hottes, M.S., Botany.
- Albert R. Curtiss, Wood Working.
- Henry Jones, Blacksmith.

COURSES OF INSTRUCTION IN AGRICULTURE.

One of the most common mistakes is to consider an agricultural course as purely technical—that is, not partly but mainly occupied with teaching how to perform the daily and monthly operations of the farm. All that is important enough, but the skilled operator under one set of conditions may be helplessly and hopelessly swamped under changed conditions. A college course must do more for a man than simply to instruct in the technique of his profession, or, for that matter, than simply to instruct in his profession, even including scientific relations.

It has been wisely said that every man should have two educations—one that should fit him for business and one that should fit him to live—for, while the man is greater than his calling, he can not exist or develop without it. In other words, one's education, no matter what his calling, should be partly technical to increase his productive capacity, and partly general, to make him the broader-minded man and the better citizen. Certainly a four years' college course ought to accomplish some of both, and ours is planned to accomplish that end.

In general, one-third of the student's time is spent in matters decidedly agricultural under instructors especially provided for this course; one-third is devoted to the sciences most immediately and intimately related to agricultural affairs, and the other third is devoted to studies of the student's own choosing. With this third of his time he may take more agriculture or more science than is required, or he may choose from history, economics, language, or literature, and the latter is believed to be the wiser.

It would take a lifetime and more to learn all the facts of agricultural practice and their scientific connections. It is therefore useless to attempt to teach all of agriculture in four years. Something, yes much, must be left for the student to learn by observation and experience. The object of an agricultural course, therefore, can not be principally to teach rules of practice, which must change with conditions, but rather to make a keen and careful student fairly familiar with the essential principles of agriculture, in order that the knowledge that he will acquire through life may be gained, so far as may be, by observation and from the world's stock of knowledge, rather than by bitter and costly personal experience.

And this is why the course in agriculture at the University is so largely elective from general university subjects. If a sharp student spends four years in the study of his profession only, whether it be agriculture, engineering, or whatever other thing that is good, he will find in the end that while he has acquired a high degree of knowledge and skill in a business line, he has not been trained sufficiently in the humanities to enable him to make the best use of himself.

THE AGRICULTURAL INSTRUCTION.

There is no better way of giving an idea of the character of instruction in the purely agricultural part of the course than by quoting from the description of term topics printed in the catalogue.

AGRICULTURE.

1. Crop Production.—A course of study directed to the principles underlying successful practice in the economic production of crops on fertile lands.

a. The agricultural crops of the United States and their growth elsewhere; the choice of crops, varieties and seed; condition of germination and of growth, physical and chemical, and their influence upon development.

b. Origin, constitution, and classes of soils; conditions and indications of fertility; a study of soil physics and comparison of successful methods with a view to securing the most favorable conditions of growth on fertile lands of various classes by means of cultivation, drainage, irrigation, or other process aside from the use of fertilizers—the manipulation of fertile soils. Text and laboratory work. Spring and fall terms, full study. Assistant, Professor Holden.

2. Live Stock.—a. Origin of the breeds of domestic animals and their distinguishing characters as afforded by variation, favored by selection, and established by heredity; formation and adaptation of breeds for particular purposes and their value for grading; accompanied by critical study and practice in the art of judging both as to breed type and as to constitution and individual merit. Text, assigned readings, and practice on Saturdays. Fall term, three-fifths study. Professor Davenport.

b. A brief study of the care and management of the live stock of the farm as to housing and feed, particularly directed to the economic sources of feeding stuffs, their equivalency and suitable preparation and proportions. Text, lectures, and assigned readings. Spring term, two-fifths study. Professor Davenport.

3. Stock Breeding.—Variation, its extent and importance, both in nature and under domestication. How far inherent and how far induced by environment. Acquired characters and their inheritance. Correlated variation. Selection. Survival of the fittest. Possibility of fixing favorable variations. Effects of use and disuse. Inter-crossing, first as stimulating, afterwards as eliminating, variations. Hybridism. Grading and its benefits. Breeding in line and in-breeding. Instinct and intelligence. The aim is to bring every known principle of reproduction to the assistance of the breeder's art, and to study the methods of successful breeders and their results. Lectures, reference reading, and practice in comparisons of individuals, and, as far as possible, of families and herds. Fall term, full study. Professor Davenport.

Required.—Botany 1; Zoölogy 3; Physiology 1.

4. Fertility.—Influence of fertilizers on the amount, character and composition of crops. Effects of particular crops upon fertility and upon each other, when grown in succession or together. Nitrogen and leguminous crops. The foregoing is made a basis for the study of conservation of fertility by the rotation of crops that the residues of one crop may be saved by the next and not washed away. Economic sources of the elements of fertility; fertilizers and manures, their valuation and use under both extensive and intensive methods. Spring term, full study. Assistant Professor Holden.

Required.—Botany 1; Chemistry 1, 3a, 4.

5. Stock Feeding.—Functional activities of the animal body and the end products of their metabolism. Foods are considered, first chemically, as affording the materials for these activities whether in construction of body tissues, or of animal products, as meat, milk, etc.; second dynamically, as supplying the potential energy for these processes, and for labor, speed, etc. A study of the phenomena of animal nutrition from the econic standpoint in which animal activity is considered as an agent for transformation of energy and the resultant product as a source of profit. Spring term, full study. Professor Davenport.

Required.—Botany 2; Physics 2; Physiology 1; Zoölogy 3.

6. Soils.—A critical study of the processes, chemical, physical and biological that are active within the soil; influence of fertilizer and of crop upon the soil; natural sources of fertility as rain water, leguminous herbage; residues or the fate of fertility, whether natural or applied, as shown by a study of drainage waters; agency of bacteria and the conditions of their activity, and the cumulative effect of manures and of various agricultural practices. The whole is designed to develop the need for, and to fix the character of, such rotations and practices as shall tend to conserve fertility and to insure perpetual productiveness of soils. Lectures and reference readings. Fall term, full study. Assistant Professor Holden.

Required.—Botany 1; Chemistry 1, 3a, 4; Zoölogy 3, or Botany 2.

7. Comparative Agriculture.—Influence of locality, climate, soil, race, customs, laws, religion, etc., upon the agriculture of a country and incidentally upon its people. One crop only and its effect, as rice; Indian corn in American agriculture and affairs. Varying conditions under which the same crop may be produced, as wheat. Statistical agriculture. Influence of machinery and of land titles, whether resting in the government, in landlord, or in occupant. Relation of agriculture to other industries and to the body politic. The agriculture of the world, its history and development. Spring term, full study. Professor Davenport.

Required.—Two years of University work.

8. Agricultural Experimentation.—A systematic study of the work of Experiment Stations and experimenters in this and other countries, together with a critical study of correct principles and methods

of experimentation, especially designed for such students as desire to fit themselves for work in original investigation in Experiment Stations or elsewhere. Winter term, full study. Professor Davenport.

Required.—Agriculture 2, 4, 6.

9. Dairying.—Studies and practices on milk and its manipulations, including testing, separating, creaming, churning, etc., together with care of surroundings and the elements of successful manufacture of dairy products. Winter term, full study. Mr. Fraser.

10. Investigation and Thesis.—There is required for graduation two terms of original investigation, the results and methods of which are to be embodied in the form of an acceptable thesis. The student may choose his subject along the line of any of the required studies of the course. The selection should be made before the opening term of the last year.

11. Butter Making.—Operation of, and studies in efficiency of, different separators in comparison with gravity methods of creaming under a variety of conditions. Influence of character of milk and its handling upon the quality of butter. Different methods of ripening cream and the effect upon churning and upon butter, together with extended practice in the manufacture and in scoring of butter. Spring term, full study. Mr. Fraser.

Required.—Agriculture 9.

COURSES FOR GRADUATES.

101. Breeding.—Variation and heredity, their nature and phenomena as influenced by selection, environment and use, with special reference to improvement of domestic animals.

102. Physiological Chemistry and the Nature of Food.—A study of the functional activities of the animal body and the end products of their metabolism, as a basis for economical feeding.

103. Comparative Agriculture.—The principles and practices of agriculture as influenced by soil, climate, tradition or the political, social or religious condition of men.

HORTICULTURE.

1. Introductory Course.—This course is intended to give a general idea of horticultural work, such as all students in the College of Agriculture should have, and at the same time to prepare those who wish it for more advanced work. It is prefaced by a discussion of some of the essentials and difficulties of fruit growing.

(a) Orcharding.—1st. Pomaceous fruits: Apple, pear, quince. 2d. Drupaceous or stone fruits: Plum, cherry, peach and nectarine, apricot.

Each fruit is studied with reference to the following: Botanical matter, history, importance and extent of cultivation, soil, locations, fertilizers, propagation, planting, pruning and training, spraying, harvesting, storing and marketing, varieties, insect enemies, diseases,

and profits. The grape and persimmon will also be briefly treated under this heading. Lectures, required readings and practical exercises. Fall term, two-fifths study. Mr. Blair.

(b) Plant Propagation.—Methods of securing and perpetuating desirable varieties by self and cross-fertilization, or hybridization, and selection. Propagation of plants by seed, cuttings, layering, grafting, budding, etc. Lectures, required readings and laboratory work. Winter term, two-fifths study. Mr. Blair.

(c) Small Fruits.—The strawberry, raspberry, blackberry, dewberry, currant, gooseberry, cranberry and juneberry.

Each fruit is studied with reference to the points enumerated under (a) above. The grape is also again touched upon under this topic. Lectures, reference readings and practical work. Spring term, three-fifths study. Mr. Blair.

2. Viticulture.—A comprehensive study of grape culture covering fully the points enumerated above under course 1, (a). Lectures, readings and field exercises. Fall and spring terms, two-fifths study. Mr. Blair.

3. Plant Houses.—Green houses, their construction and management. Lectures and practical demonstrations. Winter term, two-fifths study. Mr. Blair.

4. Forestry.—This course embraces a study of forest trees and their natural uses, their distribution and their artificial production. The relations of forest and climate are studied, and the general topics of forestry legislation and economy are discussed. Lectures. Fall term, two-fifths study. Professor Burrill.

5. Landscape Gardening.—Ornamental and landscape gardening, with special reference to the beautifying of home surroundings. The subject is treated as a fine art, and will be illustrated. Fall term, three-fifths study. Professor Burrill and Mr. Blair.

6. Economic Botany.—See Botany 8 for description of this course (p. 137). Winter term, full study. Professor Burrill.

7. Vegetable Gardening.—Kitchen and market gardening, embracing a study of the following: Asparagus, beans, beet, brussels sprout, cabbage, cauliflower and broccoli, celery, cress or pepper grass, cucumbers, egg plant, lettuce, mushroom, muskmelon, onion, parsley, peas, pepper, pumpkin, radish, rhubarb, spinach, squash, sweet potato, tomato and water melon; each studied with reference to the points enumerated under course 1, (a). Lectures, required readings, practical work. Spring term, full study. Mr. Blair.

8. Floriculture.—The study and management of conservatory and house plants. Fall, winter and spring terms, two-fifths study. Mr. Blair.

9. Practical Horticulture.—A course giving a practical training for those students intending to follow horticulture as a business. Fall, winter and spring terms, two-fifths study. (Six hours a week required.) Mr. Blair.

10. Special Investigations and Thesis Work.—For graduates and advanced students. Fall, winter and spring terms, two-fifths study. Professor Burrill.

VETERINARY SCIENCE.

1. Anatomy and Physiology.—The anatomy and physiology of the domestic animals constitute the subjects of instruction for one term. The instruction is given by lectures aided by demonstrations with use of skeletons, and of other apparatus as follows: Dr. Auzoux's complete model of the horse, which is in ninety-seven pieces and exhibits three thousand details of structure; papier maché model of the horse's foot; the teeth of the horse at different ages, and dissections of animals. This work is supplemented with the study of text-books. Strangeways' Veterinary Anatomy and Mills's Animal Physiology. Fall term, full study. Professor McIntosh.

2. Principles and Practice of Veterinary Medicine.—This subject is taught by lectures and text-books on the diseases of domestic animals, and is illustrated with specimens of morbid anatomy and by observations and practice at the clinics. The latter are held at the veterinary infirmary once a week. The students assist in the operations, and thus obtain a practical knowledge of the subject. Dissections and post-mortems are made as cases present themselves. Text-books: Diseases of Horses and Cattle, by D. McIntosh, and Williams's Practice of Veterinary Medicine and Surgery. Winter and spring terms, full study. Professor McIntosh.

3. Veterinary Materia Medica.—This subject, which treats of the agents for the cure of disease or injury, or for the preservation of health among domestic animals, is taught by lectures and text-books, illustrated by specimens of the drugs used in veterinary practice. The compounding of medicines also receives attention. Fall, winter and spring terms, full study. Professor McIntosh.

Surely if a student faithfully follow the work here outlined he will know something of agriculture, and in the four years he will have time not only to do this but to fortify himself with a liberal education that will enable him to take care of himself in his day and generation. He will not be an educated man if he does not do this, and if he has spent four years and picked up nothing but a technical training then something is wrong.

[We do not wait until the student has been a year or two at college and has become interested in something else, as do most institutions, nor do we disgust the student by giving him freshman work in the junior year simply because it is something good for him to know. We begin agriculture immediately, in the first day of the first term of the freshman year, and we are pretty nearly always at it, for one of the three studies is about sure to be agriculture.

Such a student will not forget what he is in college for, nor will he get to be an agricultural crank who forgets, or rather, does not know that there is something in the world besides agriculture. We

do not find that our students lose interest in agricultural studies because they are also taking other work; and in this general theory of instruction in agriculture we claim preëminence.]

EQUIPMENT FOR INSTRUCTION.

It will not do to say that our equipment is the best that money can buy, because it is not. The trustees have done the best possible with the funds at their disposal, and we have much to be proud of and much valuable material for illustration and special study.

All the fields of the Experiment Station farm are open and available for the students' study. These afford valuable material and are freely used for the purpose of instruction. The results of experiments made here are freely used, as well as the methods of investigation employed. For example, [this year there are growing over thirty varieties of Indian corn, and over one hundred selected variations of a single variety. There are crosses of all sorts, and there is corn inbred for three generations and so much shorter and weaker as to be plainly noted at a distance of more than half a mile. Some corn is raised on subsoiled land, other with mulch instead of cultivation, and still other with all depths of cultivation from one to six inches.]

There are one hundred and seventy-five varieties of grapes and over two hundred of apples, with other fruit and vegetables in proportion. There are growing cotton, tobacco, teosinte, kaffir corn, brown and white douhra, sunflowers, artichokes, chickory, spurry, flat peas, field peas, lupins, horse beans, white beans, soja beans, cow peas, Florida beggar weed, rape, hemp, broom corn, sorghum, sacaline, sugar beets, mangels, alfalfa, crimson, common and alsike clover, many kinds of oats, barley and grasses. If the student does not learn, it is his fault.

We have a choice little flock of Shropshire sheep, and a herd of twenty pure bred cattle representing three prominent breeds, as follows: Shorthorns, Jersey, and Holstein-Friesian, each headed by a bull from the most famous herds of the United States. This will be conceded when I mention that Padrone, the shorthorn, is from the herd of that famous breeder, Senator Harris; that Prince, the Jersey, is from J. L. Shallcross, of Kentucky; and that the Smith & Powell Company bred our Holstein-Friesian bull from stock so good that the average of the milk records of his seventeen nearest female ancestors is over sixteen thousand pounds of milk per year. What better animals than these can any student hope to find for study, particularly when accompanied by females of great individual merit?

This institution believes in the horse as the most intelligent servant of man, and is breeding Morgans for the carriage, light delivery and medium work. Particular attention is given to instruction in training horses to drive, a proceeding that has unfortunately been called "breaking," in which the student is taught to make the most of the mental qualities of the horse. A variety of work and driving horses, sixteen in all, afford excellent material for study.

With vineyards and orchards the student finds plenty of material for study. But this is not all. Several hundred dollars' worth of special apparatus has been recently put in the laboratories and classrooms for special use, to illustrate the growth of bacteria in milk and to study their relation to the dairy business; to illustrate the relation of moisture and of heat to soils of various kinds, and the effect of all upon plant growth; to show every muscle and bone in the horse, both in health and disease. In short, an excellent beginning has been made toward what will soon become a most complete laboratory equipment. It is only recently learned that to teach some of the most important principles of agriculture expensive apparatus is necessary.

A small dairy building is equipped to teach the principles and the practice of testing, separating, pasteurizing, churning, etc., and much attention is given to dairying. Bottled milk is sold every day in the two cities, and the attempt to put a fine article in the market is very popular, if we may judge from the fact that it is impossible to supply the demand.

Not least among the facilities for study is an excellent library under the management of a competent librarian, who conducts a library school. Because of a thorough system of cataloguing whatever information is at hand is always available at a moment's notice.

METHODS OF INSTRUCTION.

It is not our aim simply to cram facts into the student, but rather to make him do the work; to guide him in his investigations and turn him out able to study and to acquire for himself. In no other way will he be fitted for life, because a large part of the knowledge upon which he will conduct his business must needs be self acquired after leaving college from the fact that circumstances change and new conditions arise requiring new adjustments. From the present rate of improvement it looks as if the present generation would conduct its business very largely upon facts and principles not yet suspected by the world. If that be true the student is to use facts as indicating principles, as fluctuating elements of his environment, and must learn to be quick to recognize new facts as indicative of new conditions.

To this end instruction is partly by lecture, partly by reference reading, largely by laboratory research with the things themselves that are under study. That is what makes it necessary to provide extensive equipment in these days as compared with the time when all instruction was by lecture, and the student concerned himself only with learning what was taught. Now he not only gives careful study to what others have learned, but he himself discovers and interprets phenomena, and the result is an independent student of the world, not only as it is, but as it will be during his lifetime. He may learn fewer things to repeat, but he has learned them vastly better. He has learned to be active rather than passive, and he will go out into the world and succeed.

THE WINTER SCHOOL IN AGRICULTURE.

Unfortunately, many an active, earnest man is unable to spend four years in college and to make a thorough study of the conditions around him. However much he may realize that things are different than they were; however much he may appreciate the need of better preparation for new conditions, circumstances beyond his control make it impossible to take the college course. Or perchance it may be a man in middle life, one who in the midst of active exertion finds the need of special study of certain questions pertaining to farming.

For such as these the University conducts a number of classes during the winter term, constituting what is called a winter school in agriculture. No conditions are exposed beyond good moral character and faithful attention to work while in attendance. The earnestness shown by these students is the best guarantee of the value of the opportunity and their appreciation of the work. Let the people of the State know that while the University maintains a thorough university course for its regular students it would have no earnest inquirer go untaught because of age, or of stress of circumstances, or of business cares, but in the winter term it opens its doors to good men and women of all ages that they may come and get the good of what it has without money and without price.

During this term instruction is given and practice offered in testing and in separating milk; in bottling and selling milk and cream; in raising and ripening cream in various ways; in churning, salting and packing butter; in the diseases of domestic animals, their diagnosis and treatment; in the history and the characteristics of all the breeds of domestic animals and the principles and practice of judging to know the good from the poor; feeding and care of farm animals; injurious insects, rusts and smuts, and methods of combating; cultivation of field crops, drainage and land improvement; manure, natural and artificial, and the use and abuse of fertilizers; orchards, their setting and management; small fruit and the vegetable garden. It must be distinctly understood that everything possible is given to these students, yet that the character of instruction and the lines he will successfully follow will depend greatly upon his previous preparation. Many lines given in the university course can not be attempted in a short winter term and with the slight preparation that many of these students are enabled to bring to us. However, the courses are so elastic that even a college graduate can be given special work of as high a grade as he is able to follow out, and the aim is to adapt the offerings to the needs of the individual. The mistake must not be made of thinking that this is all of agriculture, nor that it is a fair substitute for a regular course, because it is not, but it can not fail to well repay any man, young or middle aged for the time devoted to the study.

WHAT IS AGRICULTURAL EDUCATION?

Ag. educ.

As this new term is coming into use there is much confusion as to its meaning. [It is that education which a man or a woman needs to fit him or her to live a successful life upon the farm.] If we will remember this most reasonable definition we shall clearly see what a course in agriculture ought to be.

[It is not at all to be devoted to the study of agricultural methods, nor even of facts and principles pertaining to the business of the farm; for the farmer is also a man and must discharge the duties of citizenship; the family should be one of culture and refinement, both of which are stimulated by the natural repose and quiet of the country. When we think of the man, then we see clearly that not all the instruction should be devoted to corn and the field, to horses, cattle and hogs, because are not these things kept for man's good and not man for theirs?] We have not always proceeded upon this broad view of things and have correspondingly failed because a course of study to be valuable and appreciated must really educate.

[Our domestic animals are often better bred than their human masters. They are often better housed and cared for, and we know vastly more about feeding and rearing calves and pigs than we do of the children that shall come after us. This shows which way attention and study have been bestowed, and the common revulsion of feeling against farm life is nothing but our instinctive rebellion against conditions that we have allowed to grow up and become fixed about the family on the farm. It is high time this thing is stopped, and without neglecting at all a critical study of the business side of the farm life we now discover that we must pay attention to the man himself and his surroundings in order that he may know how to live and enjoy fully the fruits of his labors.]

So an agricultural course is not all agriculture. It is not simply and exclusively technical. It is liberal and broadening in its influence upon the student, and besides imparting technical knowledge it also directs his attention to the affairs of the world at large and impresses upon him the significance of historic facts, the importance of economic problems, of the refining influence of literature and art and of the responsibility of citizenship. The course is essentially scientific as distinct from literary, but one-third of the student's time is left at his own disposal to pursue studies of his own election in order that he may follow his inclination in the matter of culture studies.

[The farmer, like every other citizen, "needs two educations, one to fit him to do business successfully and the other to fit him to live." The world needs setting right on this question because prevailing notions have been both narrow and false in that the class of education that has been conceived as appropriate for the farmer is not only inadequate to his needs but of a grade too low to command respect.]

DOES THE COLLEGE EDUCATE AWAY FROM THE FARM?

This most important question is generally answered off-hand without hesitation and always answered wrongly. The opinion is universal that if a man becomes educated he will leave the farm; ergo if you would keep him on the farm, keep him ignorant. If a boy shows any aptitude for books it is taken as a certain sign that he will leave the farm, and arrangements are made accordingly. If he affects a contempt for all useful employment it is taken as a sign of superior quality that will make its mark. If he evinces a disposition to attend to business from day to day he is counted dull, is dubbed a plodding and unambitious fool fit only to stay on the farm. This sort of selection has been going on for generations and what wonder that the one is confirmed in his conceit and that the other learns to look upon himself,—as public opinion and tradition brand him, a plodding dullard, and his natural ambition and manliness are blunted. Education, real education, removes this hasty and foolish conclusion and shows the young man that any honorable calling is honorable: it teaches him that there is less difference between occupations than has been supposed; it teaches all classes the value of landed property and the sweets of self employment. Statistics show that notwithstanding the fact that many students are landless, more than fifty per cent. of all students of agricultural colleges follow farming for a living, which is a higher percentage than is shown by most of the technical schools. I have known many a man to change his mind in college and become a farmer. I never knew one to turn away from the land while he was a student at a college of agriculture. No, my dear brother farmer, if you will send your son to college with healthy sentiments regarding rural life he will never despise it, but the truth is you secretly despise it yourself, and unwittingly in more than a thousand ways teach him to do the same. Never, I beg of you, withhold the advantages of a liberal education thinking to hold the boy upon the land through ignorance. There has been too much of that already. Give him the best to be had and send him to college with neither conceit nor contempt regarding the business of farming, and he will help to bring to rural affairs the strength and the culture that we have so largely lost through the withering effect of morbid sentiment.]

CURRENT FALLACIES.

In these days a good part of the work of him who stands for the higher education of farmers is in combating and removing fallacies:

Here are some of them:

“The farmer does not need much education, and more is liable to make him restless and dissatisfied.” This is the argument of two classes of people, one of which is composed of farmers who consider themselves as self made men, and the other of people whose sentiments in the last analysis are characterized by a contempt for all productive industry, intensely spiritual beings considering themselves as intellectual aristocrats. Hard, cold, business men and the

progressive people of the world of all classes know better and it is high time that farmers learn that their chief deriders are among their own numbers.

"The farmer is too poor to educate his children and the course must be made cheap and easy." I have heard this argument repeatedly in Illinois, and I answer it by citing the fact that four-fifths of the students of the State University in all courses come directly from the farm. This means that the farmer of Illinois not only can but does educate his children in any and all courses offered in the State, and if he does not educate in the agricultural it is either because he does not desire to do so, or because the course is not suited to his liking. If it be for the former reason let him mend his ways of thinking, and if for the latter, let him amend the course of study. In any event while he is educating for other callings let him educate a fair share for his own. Anything less is bound to lead to degradation.

"The educated man can not afford to be a farmer." A popular fallacy which forgets that the highest honors in society and state have been laid again and again at the feet of men whose interests were all with the land,—cultured gentlemen who did not blush to confess their occupation, and whose success in discharging great responsibilities was in no small measure due to the influence and the advantages of rural life and surroundings. Let us have a return of the old-fashioned country gentleman with a bit more of his sturdy good sense in our public affairs. That the farm does not lead to great wealth is true, but it is also true that it does not strew the way with stranded wrecks. Its essential conditions leads in activity to the best display of the powers of man, and in leisure time to that repose which is most favorable to orderly thought and judicial action. The educated man can be at his best on the farm as surely as in the factory, the mill or the counting house, at the desk, or in the mine.

We shall very soon see these things more clearly, and then young men and young women will hold more rational views as to what are the respectable occupations. We must save some good country homes into which our future great men may be born.

WHY IS THIS THUS?

Of the four colleges of our State University the agricultural is the only one without a special building and ample equipment for instruction. Such a building and apparatus have been twice asked of the General Assembly and twice refused. Why is it that the people of this great agricultural State have given money freely to equip the largest engineering college belonging to any state university in America and refused to do the same for agriculture? Why do the farmers of this State erect buildings for this college with a total length of more than 500 feet and persistently refuse a special building and equipment for the training of young men in their own profession?

They have done this thing, although it has been clearly pointed out that New York, Massachusetts, Ohio, Wisconsin, Minnesota, Iowa and Michigan have all equipped their colleges of agriculture with special buildings and liberal apparatus, and that even Kansas has far outdone us. It has refused to equip this college, as well as those of other states, even though young men who expect to return and live upon the farm are taking the engineering rather than the agricultural course, for no other reason than that with their superior equipment they can give better training. Our farmer legislators forget that it will not be possible to always "keep the boy on the farm" if they liberally equip all the other colleges and as persistently refuse to do the same for the college of agriculture. It must occur to any thinker that bright students will take that course which can be the best taught, and that a course with meager facilities stands but poor show in comparison with another that has the best that money can buy.

When the splendid equipment of the engineering college is mentioned in contrast with our meager accommodations, let it be distinctly understood that they have nothing they do not sorely need; that the State ought to have done all it has done for them, and that it ought to continue its liberality to the end that it shall become and remain the greatest engineering college in America; but surely Illinois ought to do as much for agriculture, and that is why the comparison is drawn. The education that the State is providing is "lopsided," it lacks symmetry, and then we wonder why the agricultural course is not better patronized. [It is both strange and lamentable that from farmers themselves comes all the violent opposition to equipping generously the College of Agriculture. This opposition is in the name of economy, but it is fatal to progress, because it comes from within the camp and has enormous effect, making it easy for a legislator to say, "You are not agreed as to what you want." This is written not to complain, because complaining is an evidence of weakness both in the individual and his cause, but it is written with the hope of arraying all farmers into whose hands this may come upon one side of the question, whether farmers should not have as good an education as other craftsmen or other citizens, and as to why Illinois is in this matter so far behind her sister states.] When the asking is again made will you help to secure liberal appropriations?

WHAT HAS BEEN DONE.

Although the trustees of the University have not been successful in getting money for buildings for the College of Agriculture, they have done very much, and all within their power, to make its work effective. The government funds can not be used for buildings, but they have provided us temporary quarters in the various buildings, and they can not be censured if they have sometimes been in the basement and sometimes in the attic. Other worthy enterprises for which the State has not provided have to do the same until better

times. We have some of the best rooms, and especially recently the general funds have been drawn upon for apparatus and equipment to keep us on until the State shall be ready to deal well with us. They have divided the work and given three instructors in the different branches of agriculture, and are ready to do much more as soon as the State will indicate its willingness to establish here a college of agriculture that shall stand well to the front, or as soon as it begins to appropriate money to that end.

EUGENE DAVENPORT,

*Dean of the College of Agriculture,
Director of Experiment Station.*

ANNUAL MEETING OF THE ILLINOIS LIVE STOCK BREEDERS' ASSOCIATION.

Supreme Court Room, State House, Springfield,

FRIDAY, FEBRUARY 26, 1897.

Morning Session—10 o'clock.

Hon. J. W. Judy, *Chairman*.

Address—Hon. J. W. Judy, Tallula, Ill., President.

Address—"Our Cattle Interests"—Hon. A. B. Groat, Winchester, Ill., President Illinois Cattle Breeders' Association.

Address—"Our Horse Interests"—Hon Charles Ridgely, Springfield, Ill., President Illinois Horse Breeders' Association.

Address—"Our Hog Interests"—Hon. C. E. Vigal, New City, Ill., President Illinois Swine Breeders' Association.

Address—"Our Sheep Interests"—Hon. R. M. Bell, Decatur, Ill., President Illinois Sheep Breeders' Association.

Address—"Our Poultry Interests"—Hon. Grant M. Curtis, Quincy, Ill., President Illinois Poultry Association.

Address—"Cattle Feeding"—William Watson, Winchester, Ill.

Address—"Horses"—J. S. Cooper, Chicago, Ill.

Address—"Sheep"—J. Lewis Draper, Chicago, Ill.

Address—"Swine"—John Swengel, Neoga, Ill.

Address—"State Poultry Interests"—Grant M. Curtis, Quincy, Ill.

Other papers on live stock and poultry will be presented and discussed.

OFFICIAL BOARD ILLINOIS LIVE STOCK BREEDERS' ASSOCIATION.

Officers—President, J. W. Judy, Tallula; Vice-President, Charles Ridgely, Springfield; Vice-President, J. F. Prather, Williamsville; Vice-President, Charles E. Vigal, New City; Vice-President, R. M. Bell, Decatur; Secretary, J. H. Pickrell, Springfield; Treasurer, Charles Ridgely, Springfield.

Executive Committee—J. H. Pickrell, Springfield; R. P. Stericker, Springfield; John G. Springer, Springfield; Charles F. Mills, Springfield. And officers of the association.

PROCEEDINGS ANNUAL MEETING ILLINOIS LIVE STOCK BREEDERS' ASSOCIATION.

Friday, 10 a. m. February 26, 1897. Supreme Court Room.

In the absence of President Judy, J. H. Pickrell, Secretary, called the meeting to order, and read a letter from President Judy expressing his regrets that he could not be present.

On motion of Mr. Stericker Mr. A. P. Grout, Winchester, Illinois, was made chairman of the meeting. As Col. Judy had failed to send a paper Mr. Grout called Col. Fulkerson to the chair and proceeded to deliver an address on "Our Cattle Interests," after which he assumed the chair.

OUR CATTLE INTERESTS.

The conditions surrounding the cattle interests of Illinois, can undoubtedly be said to be brighter and more encouraging than for some years past.

While this may be a matter of congratulation and the culminating event to which cattle feeders and breeders have been looking forward for so long time, yet this tendency to look for profits only in an increase of prices is not an altogether desirable condition.

The good old times in cattle breeding and feeding are unquestionably gone never to return.

The sooner this fact is fully realized and understood, the better it will be for our industry. The sooner we cease to look forward to better times and higher prices and accept the situation as it actually exists, the sooner will we be able to manage the business so as to secure a fair profit.

We have little or no control over prices but we can improve and control the cost of production. Why then, should we place our sole reliance and dependence for a profit in something over which we have no control and disregard the only factor which will insure us a fair return for our efforts.

"Times and circumstances change and the wise man modifies his practice to suit the times."

The extravagant and fancy prices for breeding stock and the large profits in feeding cattle are now reminiscences of the past and in all probabilities never to be repeated.

We are today surrounded by vastly different conditions and are confronted with competition formerly unknown.

We have new questions to contend with and new problems to solve.

Instead of looking to higher prices for our profits we will find them only in a reduction of the cost of production.

The wasteful and extravagant methods of feeding so long practiced, must be abandoned, and a greater gain must be secured for the food consumed.

The times and conditions have changed a great deal faster than our methods.

It is certainly time that this waiting policy—this looking forward to higher prices, which are continually being figured out and predicted by the agricultural press should cease and the breeder and feeder be made to understand that the success or failure of his enterprise depends more largely upon the means and methods adopted by him than upon anything else. This will compel the exercise of greater care in the selection of stock and in feeding and caring for it. It will demand the exercise of better judgment and careful study and experiments all along the line of economical production and management.

We do not feel like holding out a single inducement or encouragement that there is anything in the future of the cattle business any better than exists today, so far as prices are concerned.

If this be the case, can cattle be bred and fed under existing conditions at a profit? We believe it to be possible if right methods are adopted.

But this does not mean that the breeder can any longer pay \$—— for a single cow or several thousand dollars for a bull, or that he can pay extraordinary prices for pedigree, with little or no regard to quality.

We must be satisfied to increase and improve our herds gradually and to go no further or faster than we thoroughly know and understand the business.

The breeding of pure bred stock has been greatly injured and in many cases proved unprofitable because it has been boomed beyond all reason and because it has so often been taken up as a fad by inexperienced men with more money than brains.

The low prices and small profits which have prevailed for some years past, ought to be of great practical value to the cattle industry of this State.

It has demonstrated beyond all question, that greater economy in feeding and better care and management are absolutely essential, and that by the exercise of it, it is possible to lower the cost of production so as to leave a very substantial profit.

The cheaper methods of feeding enable more animals to be kept on the same number of acres and with the same amount of feed. During all of these years of depression dull low prices by some parties at a profit and by many more at a loss, but it goes to prove that the prices which have prevailed, are not chargeable with all the failures.

We believe that our cattle interests can best be served and advanced by abandoning all idea of an improvement in prices and by giving our attention and study to the more economical production.

The past unfavorable conditions have demonstrated many things and among them, that well bred steers are far superior to scrubs for feeding purposes—that in order to thrive and make the greatest gain an animal must be made comfortable at all times—that the right kind of animals can be fed and marketed at two years of age at a greater saving over former methods—that a variety of food and a balanced ration will produce the greatest gain at the least cost—that stock raising and feeding can only prove remunerative when the animals are kept in a state of progression from birth to maturity. These are only a few of the things some cattlemen have learned while many more have been clamoring for higher prices.

The cost of production is the question to which attention should be directed, and the one of all others which should be studied in a thoroughly practical and common-sense way. There is far more in it, so far as profitable returns are concerned, than there is in heralding the coming of a great cattle boom and causing men to rush into the business at all hazards and at any cost.

Cattle breeding and feeding is not a business to be taken up in a hap-hazard way or rushed into at any expense because of a prospected advance in prices.

At the present time stockers or feeders are selling out of all proportion to the price of fat cattle and with the poor quality only to be found, it may well be questioned whether it would not be better to keep the corn or sell it even, rather than feed it and especially to poor and inferior stock.

It is generally contended that stockers and feeders can be bought cheaper than they can be raised, but we think it is right here, that a mistake is made and especially when the quality of the stock that can be bought, is taken into consideration. A great many feeding cattle have been purchased on the future outlook and a prospective advance in the price of fat cattle that never materialized and much money has been lost. There is too large an element of speculation in this method.

It is a well known fact that cattle-feeding has bankrupted many well to do farmers. The only safe way is to buy only young stock and grow it on cheap food such as grass and corn-fodder and such food as is very often allowed to go to waste, and thus secure a cheap growth.

But the better way is for the feeder to raise his own well bred steers for the feed lot as far as possible, feed and care for them properly from birth to maturity and thus make sure of a profit.

By no other method is there any certainty of avoiding loss.

It is an undoubted fact that our native cattle have deteriorated in quality in the past few years while range cattle have steadily improved. This want of enterprise on the part of the feeders of Illinois is one great cause of the unprofitableness of the business. So long as cattle-feeders are in the business with all their might one year—and out the next—so long as they go rain-bow

chasing after future outlooks and speculate on the prospect of higher prices, just so long will they be forced into competition with the range cattle raised and fed under so much cheaper conditions. Really good cattle never fail to carry off the premiums in the matter of top prices and seldom fail to return to the producer a profit.

We believe the business of cattle breeding and feeding can be made profitable if rightly managed.

In the first place it should be undertaken, not temporarily, but as a steady, permanent business, with a full knowledge of the situation and the difficulties to be surmounted.

The foundation should be laid in quality and that quality should not only be maintained but constantly improved.

There must necessarily be judicious selecting in procuring feeding stock and then judicious care and handling in fattening it.

It is only by a constant and untiring effort that we can ordinarily hope to succeed, and then only by taking advantage of past experience and producing a better quality at a less cost.

As stated by our by-laws the Illinois Cattle Breeders' Association was formed for the betterment of the cattle industry of this State. We are here for a common purpose, and for the doing of something that may be to our mutual advantage.

The question may well be asked, at this time, what can we do that will be to our mutual advantage, and improve the cattle industry of Illinois?

Our organization and coming together ought to result in something practical and something more than a mere formal gathering.

We do not, like some, attribute all our woes to legislation or the want of certain legislation, or to something entirely beyond our control, but we feel that the situation is very largely just what we make it, and that it is within our power to improve the present condition of the cattle breeding industry of Illinois, if we but put forth the necessary effort in the right direction.

In the first place while the superiority of improved cattle, of all breeds and for all purposes, is tacitly acquiesced in by the general agricultural public, yet in practice there is a surprising indifference and lack of interest on the part of a great majority of the farmers of Illinois as to the quality of their cattle.

An examination of the feed lots will reveal this fact. Many counties were entirely wanting in well bred cattle of any breed or for any purpose.

The field for improvement right here at home is almost limitless, and there is room and urgent need for all the pure bred stock that can be produced in this State for many years to come.

Every farmer in Illinois should be brought to realize and appreciate the advantages to be derived from the use of improved stock. We would make the difference in value between improved and scrub stock so plain that "he who runs may read."

The live stock and agricultural papers are doing all they can to keep this subject constantly before the farmers of Illinois, and to show the disadvantages and unprofitableness of raising anything but improved stock.

Can we as an association do anything that will bring the subject more forcibly and pointedly to the attention of our farmers and lead them to adopt more profitable methods? Here, it seems to us, is our first great opportunity and undertaking.

As breeders of improved stock we must educate the people to want what we have for sale. We have an educational undertaking before us.

The facts and figures are on our side, and are not wanting to make it plain to the average farmer, that by using improved stock he is benefiting himself far more than the breeder from whom he purchases it.

The question is how can this be done?

Certainly not by coming together and discussing the future outlook of the cattle business among ourselves.

We must deal directly with the present and devise ways and means whereby a demand may be created for better stock and thus advance our mutual interests.

Whether this can be done through the Farmers Institutes, through the agricultural press or by special literature issued and distributed by this association, or by all of these means is a matter for your consideration. The breeders of pure bred cattle are public benefactors. The efforts they have made in the past few years to maintain and improve their herds and to keep up the cattle industry and the reputation of this great State in that direction certainly entitles them to some consideration. We do not believe it to be either wise or politic to impose unusual breeders upon the products of such enterprise, in the way of increased taxation of the improved over common or scrub stock. We believe the State should encourage and foster every effort of this kind, and should say to the breeder, in effect, that whatever value you may add to the animal, by the introduction of better blood or the exercise of better care, is yours to enjoy without additional taxation. Let there be no penalty attached to thrift and intelligent enterprise.

Again the breeders of pure bred cattle are doing much to build up an industry in this State, and put it on a footing whereby it can successfully compete with the cheaper conditions which exist in the far west, and thus add largely to the railroad traffic of this State. Yet the railroads are most unappreciative and place such unreasonable restrictions and rates on the transportation of this class of stock that in some cases it becomes almost prohibitive and in all cases it is an unjust burden, that is doing much to delay the introduction of improved cattle among the farmers of Illinois.

We are informed that some States have far more liberal laws on this subject than we have. That the conditions, and rates and minimum weights are much more reasonable than those of Illinois. There can hardly be any good reason why we should be subjected to these burdensome discriminations. You all know what they are. The same reasons that give better terms and rates in Iowa or Missouri ought to hold good in Illinois.

Can this association take steps to bring this matter to the attention of the proper parties and secure rates and conditions that will be more reasonable and less burdensome.

Another matter which it seems to us may well be considered is that of the holding of public sales of pure bred cattle.

It is well known that at Perth, Scotland, and Birmingham, England, such combination or general sales are annually held—that they are most successful and satisfactory in every respect and are watched with great interest by cattle breeders all over the world.

Within a few days almost 500 bulls are to be offered at the annual Perth sale.

If this plan has been a pronounced success for so many years at Perth and Birmingham and its advantages, why would it not be equally successful and advantageous in Illinois? We merely desire to call attention to these matters and leave the further consideration to the pleasure of the Association.

We do not wish to bar by the suggestions we have made, any other questions or suggestions which any member of the Association may desire to offer but most cordially invite them.

Let us have a free and candid discussion of those things which pertain to our mutual interests.

Mr. Ridgely, President of the Horse Breeders' Association' also sent a letter and regrets, stating that pressing business had called him to New York.

Mr. C. E. Vigal, of New City, President of the Swine Breeders' Association, delivered an address on "Our Hog Interests."

OUR HOG INTERESTS.

The hog is not a native of America, but it followed closely upon the footsteps of the white man, and the fact of its easy adaptation to our climate and its marvelous multiplication are among the many evidences of its importance as a factor of the wealth and prosperity of the land of its adoption. The early history of the introduction of swine into this country is very meagre, and we have to content ourselves with much uncertainty. We are informed by history that the first swine introduced into this, was brought with Columbus upon his second visit to the new world in 1493; the next mentioned were brought into what is now known as Florida in 1538, and again in 1553 the Portugese took some swine into Novascotia and Newfoundland. All the importations so far were doubtless of Spanish origin. In 1604 the French took swine into Canada. In 1608 the London Company took from England to Jamestown Colony in Virginia about six hundred head of hogs. This is the first instance in which anything is said in regard to the number; again in 1624 swine were taken to the Colony of Massachusetts Bay. In 1625 the Dutch West India Company imported to this country swine from Holland into what is now New York and New Jersey. About 1637 a colony from Sweden settled in what is now Delaware, bringing with them the horse-hoofed swine of their native land. Here is the first peculiarity mentioned in regard to any of the importations of swine. From time to time as the various colonies were settled and emigrants came to our shores they brought with them the domestic animals of their native lands, among which appears the swine. We are unable to give much information in regard to the early swine for several years, except that they multiplied very rapidly and subsisted upon roots, herbs and nuts, just as settlements were beginning to prosper and the settlers to give some attention to crops and domestic animals. The war of the Revolution broke out and all was confusion for some time. After peace was restored, it took several years to get back to the point where the war found them, and then realizing they had a home and a country, the new citizens being largely an agricultural people, began to look about for improvement in live stock. The first to receive attention was the horse, cow, sheep, and last but not least, the hog. As civilization and agriculture advanced, Indian corn was fast becoming their great staple, and in the absence of transportation facilities, some means must be devised for a profitable consumption of their surplus crop. The hitherto despised hog afforded the very best means of converting their corn into a commodity, thereby enabling to procure the necessities of life, thereby bringing happiness and contentment and prosperity to the American farmers' home and family. So by acquainting ourselves with the history of the introduction and propagation of swine in our country, from its very earliest introduction on down to the present time, we see it gradually growing in magnitude and importance from year to year until today the hog interests of this country is the equal of any other industry in which the American farmer is interested, and surely is the sheet anchor of our prosperity as an agricultural people, and as such command our most

careful attention. From a very insignificant beginning it has steadily grown in importance, until today, in spite of all drawback confronting it, it is the most profitable of any department of live stock to the practical, progressive, wide-awake American farmer. For surely it is only the wide-awake, up-to-date farmer who reads and thinks and uses his brains as well as his muscle in his business that can hope to make a success in his profession.

The various agricultural experiment stations and swine breeders' associations of the country have done a grand work within the past few years toward the advancement of the swine interests of our country. Many valuable lessons have been given us through the publication of the various tests in regard to the different kinds of feed and their relation to each other and to the swine; also the vast amount of literature that has been distributed, and the many excellent discussions upon the various questions connected with the breeding and management of swine. He who would be successful in the breeding and feeding of swine must give it much time and thought and his earnest careful attention, seek to look well after the small things connected with it and success will crown his efforts. As time changes nearly all things, so the demand for our pork products has changed. So the profitable hog of today is a very different animal from his early ancestors. From the very nature of the changed condition it is necessary in order to make the greatest profit from him, that he must have proper care and such kinds of food as will best promote his growth and early development. While I believe early development a most essential quality, I am not quite sure but some of our breeders and feeders as well have almost reached the danger point by using corn as the only grain food for generally, thereby weakening the organs of generation by producing too much fat, thereby impairing the constitution of the pig. If farmers and feeders would give up the idea of feeding too much corn and feed more of a mixed ration to produce bone and muscle, we would hear less about swine disease in our country. While the breeding and feeding of swine is no doubt one of the most profitable industries it has its drawbacks to contend with. There is a dark side to this as well as all other industries and we have much to contend with. How often has it been the case that a man has had a fine lot of pigs that he has labored with and cared for during the spring months, and has bestowed the best of care upon them, watching them grow from pig-hood and develop into a fine lot of hogs almost ready for the butcher's knife, and only wake up some morning and find piggy off his feed and in a few short days see his summer's work disappear as vapor before the summer's sun. Such ordeals as these try a man's nerve, but he must not lose his senses nor weaken, but must set about to battle with the enemy. He must act quickly. Some one has said "eternal vigilance is the price of liberty." The year that has just closed has been one of disappointment to many engaged in the hog business. But not any more so than a great many other industries. There were a great many disappointments in the political world within the past few months. The swine industry is not exempt. While in many localities a large per cent. of hogs succumbed to disease, yet those

engaged in the feeding and breeding of swine have never before in the history of the swine industry realized a greater return upon capital invested than has been realized within the last year.

The American hog today occupies a place never before reached in the estimation of the American farmer. The hog interest of this country is not on the wane, but will continue to increase in importance as long as agriculture continues to be a leading industry of this country. I deem it unnecessary to enter into any table of figures to convince the farmers of this association of the magnitude and importance of the hog interest of this country. In conclusion, I am glad to see so many farmers of this grand State of Illinois waking up to the fact that they must produce a better type of the American hog than heretofore produced. Our lands are too valuable to raise anything but the very best when it don't cost any more than it does to produce an inferior animal.

Vice-President Vigal was called to the chair and Mr. Grout in the absence of William Watson, Winchester, read an article prepared by him on "Cattle Feeding."

CATTLE FEEDING.

This article is supposed to apply to the feeding of domestic animals, not to range cattle in a semi-wild state, still it may be found applicable in both cases.

In the Breeders Gazette of December 30, 1896, Prof. Curtiss of the Ames Agricultural Experiment Station, says, "No inflexible rule can be established in successful feeding." Empirical knowledge is no longer a safe guide. The situation is one that calls for a practical solution of the problems presented from year to year, and from season to season. These are simple truths every breeder should give heed to.

To succeed in feeding the feeder must exercise skill in selecting animals suitable for the purpose. They must be good representatives of the breed, well bred, blocky, and mossy coated, those that show by the eye and touch that they have the desired qualities to store up flesh and fat.

Let the animals be young, for the food consumed, young animals increase in live weight much faster than old ones. The increase from food consumed, or the storage of the ingredients within the body gradually decreases with age, until at maturity it altogether ceases.

Well bred young cattle not only increase in weight more rapidly than old ones, but they realize a better price per pound, and are much more popular with the consuming public.

There are crosses most desirable, especially between two pure bred herds of the beef producing sorts, notably that between the Aberdeen Angus and Shorthorn; they can not be surpassed; their quality of meat and lightness of offal may be approached, but not excelled. Unless the stock are of the right sort even the skilled feeder will fail to make his work a success.

Now for the feed. The feeding value of a food is fixed by two factors; its composition and its digestibility. Which will depend on its quality, and the proportion in which the various ingredients are used; also on their digestibility and palatability, and not least the care and comfort with which the animals are given. Palatableness is one of the pivotal virtues of food. This virtue is often of more importance than actual nutritive value. Digestibility is of little account in a food that cattle contemptuously regret. Where food is unpalatable it will be eaten only in amounts sufficient to maintain live weight with growth, so the success of the feeder greatly depends on the skill he displays in compounding the food.

The chief point to guard against is the waste of nutritive constituents. The successful blending of food is an art with which the practical man is not so familiar as he should be, yet it is within the scope of every farmer to learn the proportion of the various ingredients, so as to produce the best results in fattening. As a rule feeders have neglected to study the most important essential in feeding, the proper blending of fat and lean.

A large mass of information of these points are now available, thanks to the able professors of our agricultural experiment stations.

As pecuniary gain is the first object in stock feeding there can be no hard and fast lines laid down even by scientists. Since the commercial value of the various foods fluctuate to such an extent as they have done of late, the foods that are cheap at one period may be dear at another. Whatever the reputed values of the ingredients are, it must be kept in mind that the foods must not only be well balanced, but they must be digestible and palatable; they must be of such taste and flavor as will induce the animals to eat sufficiently. In fattening, success greatly depends on the herdsman, a man if thoroughly conversant in his business and attentive to it, is by far the most valuable servant on the farm, and ought to be treated as such.

He can make or lose much for his employer. He ought to command good wages, and supplied with reading material applicable to his avocation. So much faith have I in an intelligent, reading cattle attendant that I would give several dollars per month more to a man who read and studied the *Breeders Gazette* than to one who did not.

Our agricultural professors have taught us that the albuminoid ratio for the profitable increase of farm animals lies between 1 to 5 and 1 to 8; that is the proportion of digestible albuminoids to digestible carbohydrates should not be higher than one of the former to eight of the latter. A lower or higher ratio involves "waste" of one or other, and if the best results are to be obtained the proportions must be closely calculated to meet a balanced ration. For rations must be properly adjusted or balanced, so as to contain all the essential elements of nutrition in due proportion.

To teach agricultural chemistry is not my province, so allow me to hand you over to Professor W. A. Henry and secure from him if possible a copy of the tenth annual report of the Agricultural Experiment Station, Madison, Wisconsin, for 1893. In it you will find

full information regarding the composition of feeding stuffs. Digest the contents well, and you can soon make yourselves masters of the secrets of a well balanced ration.

It is a delightful study. Farmers, like other manufacturers, must conduct their business on a thoroughly business-like system and on business principles. They must avail themselves of the faculties afforded for scientific knowledge and training. I do not mean to infer that practical knowledge is unnecessary, but even a wide practical knowledge without the aid of science in such an important matter as stock feeding will prove of little avail. Practice and science must go hand in hand.

The farmer of today must not be above giving his attention to little points of detail, for in agriculture the day of small things has assuredly come. He must have method, precision, economy, forethought, and a thorough knowledge of his business. Lack any of these essentials and he will find the balance on the wrong side of the ledger.

If farmers desire to keep up with the times let them study the results of those feeding experiments that have of late been so ably illustrated by Prof. Craig, of Madison, Wisconsin, by Prof. Curtis, of Ames, Iowa, where the heifer beef, and the Southdown lambs tasted so sweet, of the interesting experiments so ably related to us by Prof. Shaw, of Minnesota, and of many other earnest workers who devote their time and talents to the welfare of the feeder.

Among our strong towers, no agricultural authority more richly deserves a golden niche in the temple of contemporary agricultural writers than Prof. W. A. Henry, of Madison. Let me draw your attention to the preparation of food. In preparing food for stock great importance is placed upon the desirability of having the food presented to the animals in a palatable, cleanly and convenient form. These are points which are little thought of by the average stock owner. Nevertheless to the feeder who wishes to insure a satisfactory return for his expenditure they are worthy of his closest attention. Ill prepared, uncleanly food is distinctly antagonistic to the maturing of the fattening animals.

Cattle are less liable to serious injury than horses from tainted or ill prepared food, yet every careful and observant feeder has learned that by scrupulous attention to the palate of his animals, he may sensibly hasten their progress. This can only be done when the food is presented in a palatable, sweet and savory form. The feed may be flavored with a little condiment such as treacle which ought to be reduced by water, one-third of its ordinary strength before being mixed with the other foods. When molasses are used great care should be taken that the feed troughs do not get sour. Wherever practicable, have a passage in front of the feed troughs. Feeding is facilitated and cleanliness better attended to.

Do not on any consideration feed without thoroughly cleansing the feed boxes, no matter how frequently, or whether indoors or out of doors. Feed boxes ought to be shallow and broad, rather than narrow and deep; in the latter the breath is confined while eating,

and the food becomes heated and tainted; as for racks they will soon get into disuse, as in the near future all fodder will be either chopped or shredded, then, and not till then will there be the first step to economy and thrift.

As a rule breeders do not with sufficient consideration and intelligence adapt the ration of food to the purpose for which each particular lot of animals is kept. Animals which are to be depended on for the perpetuation of their race with unabated vigor, and if possible with increased usefulness must of necessity be sustained with food substantially different from those foods best adapted for the production of beef. We believe in liberal diet to breeding as well as to fattening animals, but care should be taken to adopt the ingredients of the food to the purpose in view. Breeding and growing stock want muscle rather than fat; fattening animals the reverse, so you must arrange the food ingredients accordingly.

Few breeders have a definite aim in view for their calves when born. Every one ought to have business sagacity to feed for a certain purpose, whether it be for the shambles or the milk pail. Don't boast of how cheaply you have carried the young things through; remember we live in the day of baby beef, so you must deal generously and feed accordingly.

Corn in itself is not a proper feed, for, in calf cows, owing to its containing an excess of fat formers where they are not needed and a want of bone and muscle where they are needed. Oats and bran ought to constitute the greater part of the pregnant cow's grain food; to these ought to be added pulped roots and chaffed clover hay, giving preference to Alsike and common red. Let corn and timothy hay and other carbonaceous food supply the fattening steers.

No food can be used with profit alone. Every feeder must have observed how much better cattle thrive when they have variety than when they are confined to one food. Attention is often called to the bad results following the use of single restricted fodders for long periods. Is it not possible that the continuous use of a single mixture, no matter how carefully balanced, will be followed by largely the same results as continuous feeding on the same article: it will, for I have proved it so by experiment both in cattle and sheep. Gentlemen, how would you like to be kept the year throughout on fried pork? You would soon loathe your food as the cattle do on corn—corn at every meal.

You must have observed while feeding cattle on corn daily for a long period that instead of their coming briskly and commencing to feed, they will hang back, give a sniffer and a toss of their head, as much as to say confound your corn, give us for a change some rolled oats, bran and a little cake. You too, gentlemen, would hang back if there was nothing waiting you but the old story, "fried pork." Keep in mind that you can not learn to feed entirely by note or set of rules, for animals' food and circumstances will vary, and what may be well done in one case may be ill done in another. Mark, also, that no animal intended to be fed off should ever be allowed to

lose flesh. It is a positive loss when they are allowed to do so, as the food consumed is wasted, so feed liberally from birth and keep your eye fixed steadily on the day of sale.

It is a most essential point that the periods of breeding should be regular. Disturbing animals interferes with their progress; regularity ought to be strictly enforced.

In the case of unexperienced servants, a time log ought to be written out and rules strictly adhered to. Where cattle are boxed or tied up quite a number of operations have to be gone through, such as cleaning stalls, feeding, bedding and grooming. The time required for each operation will depend on the number of cattle and conveniences; cattle must be kept free of vermin, especially lice. McDougal's dip is a most effectual application.

Attention to details has an extraordinary influence on the progress of cattle feeding. Wherever there is a shortcoming of attention I have invariably found it was the result of inadequate help, not the fault of the herdsman.

Cattle in health do a great deal toward grooming themselves; their long rough tongue make an admirable currycomb. A coat never looks better than when well dressed by the animal himself. Come over him with the currycomb, then give him a good brushing with a hard brush, paying special attention to those parts out of the animal's reach, adding much to their contentment; this should be done every morning. You must be gentle with your animals and gain their affections. There is no way you can do this so easily as by the use of the brush and comb and kind words; nor is there any way you can lose that affection sooner than by a curse, followed by the application of the toe of your boot.

Now for the autumn. As autumn draws nigh pastures become damp and uncomfortable for outlying cattle. With a falling temperature stock require more food, and that of a richer character, more particularly in carbohydrates. Without increasing the weight of the animal his condition can barely be maintained except by the aid of auxiliary food. To a casual observer the cattle appear to be thriving; their coats increase in length; they drop in the underline as if progressing. A close inspection reveals the true facts. They are losing their fine elastic touch and feel flabby. The hair and paunch have increased at the expense of the most valuable parts. The farseeing feeder will at this season cull out all animals showing signs of shrinkage or delicacy and have them placed in a well sheltered yard and liberably, though prudently, fed, their feed being gradually increased according to their appetites. In that way you can "level up" your mob and add much to their value; at the same time by taking the weak ones in hand before allowing them to get too low in condition, you greatly strengthen their digestive organs and get them in readiness for forcing, for, keep in mind there is no greater mistake than cramming a lean beast of poor digestion with cake and corn. Before doing so he must be vigorous and able to assimilate a liberal amount of fat-forming food; before laying on fat

he must have a certain amount of flesh. "Practice and experience" will soon teach most men when to begin to be liberal with artificial food, and I may add, "Practice and experience only."

There is another point in feeding that few attendants or owners pay attention to, that is the effect the weather has on the animals' appetites. After an attendant has said to me the cattle are off their feed today, yet I gave them no more yesterday than usual. It was not from overfeeding that the cattle showed aversion to their feed, but from the effects the atmosphere had on their appetites. During dull, foggy weather cattle seldom eat heartily, so should have their usual amount curtailed, lessening the carbonaceous feed for the time being; as cool weather returns so does their appetites. Like human beings, cattle suffer from indigestion and other ailments and refuse their food. When this is the case the food should immediately be removed and something more tempting substituted until the stomach regains its tone. Much as science is doing for us, we must ever remember the true feeding value of an article of cattle food can be determined only by actual trial, for in the long run there is no chemist like digestion.

In feeding we must all be aware that, as a general rule, farmers make the feeding day too short, consequently the night too long. I mean by that the animals are only fed three times daily, say six or seven in the morning, at twelve noon, and between five and six in the evening. Most cattle to be made the most of, I speak of feeding cattle, ought to be fed four times a day, viz.: At five or half-past according to the season, at half-past eleven a. m., at four p. m., and supper at eight at night. Feed in small compass, as the minute subdivision of food enables the stomach to contain a greater percentage in quantity than with loose hay or large roots, so always present your food in the smallest compass requiring the least mastication. Every half hour saved in feeding is so much added to rest, a most important item in fattening.

Dry finely cut hay chaff mixed with the meals will prevent laxity and flatulence, producing also a sufficient and healthy excitation to the stomach, while it will afford to the gastric juices a ready access to every part of the mass of food. Cattle lay on a much larger amount of flesh in comfortable quarters than in cold, therefore the importance of shelter must be obvious to the most inexperienced. Nowhere do cattle feed better than in compound yards; these are yards part covered and part open. The covered shed with manger and feed passage afford ample shelter during the severe weather, whilst the open yard provides room for exercise and is conducive to health.

When cattle are tied up by the week an important point for the feeder is to be able to regulate the supply in common with the requirements of individual animals, some requiring a much larger amount than others.

Gentlemen, there is one point we all more or less err in, that is, in feeding our cattle too much concentrated food. The amount of grain

wasted every year by improvident feeding is enormous, only equaled by the disastrous poorly balanced rations. A third of the grain feed to our cattle is frequently wasted.

How can a steer digest 25 pounds of corn, yet such is the amount frequently offered him. Some argue the hog will account for what the steer can not. My answer is that the steer and the hog combined can not assimilate 25 pounds of corn.

Feeding a large percentage of carbonaceous food, such as corn and a small per cent. of albuminoids, is the cause of much sickness through indigestion, because of the sided ration. Feed all the grain or meal the cattle can digest and assimilate, but no more. It must be borne in mind that it is beyond the power of an animal to assimilate more than a certain portion of the flesh-forming and fat-forming elements of food, therefore to give a quantity of rich concentrated food in excess of the animal's requirements, is certainly a direct waste, ending in the manure heap. I may here mention that I am often asked the question whether I prefer finely ground corn or corn cob. The answer is decidedly in favor of the latter. The cob is an excellent divisor—promotes digestion, and is most relished by the cattle.

In addition to concentrated food cattle require what I term abundant belly measure. They must have sufficient coarse fodder, such as corn stalks, oat straw or a feed of good clover hay once a day, so as to appease their appetites and further digestion. All these combined with an allowance of rolled oats, oil cake and bran will certainly make a much better, and, therefore, to a feeder a more fattening and much more economical feed than the grain by itself. I need not add that hardly second in importance to plenty of good, well balanced rations is an abundant supply of pure water. Rock salt should always be within reach.

The question now to show how to avoid feeding over much concentrated food. Undoubtedly the best form of feeding concentrated food is in chaffing fodders, then adding the meals. This is the system generally adopted in all well regulated feeding establishments.

In no country in the world could chaffing be applied to greater advantage than in America, where an enormous amount of valuable fodder is annually allowed to go to waste. There is no economy on a farm to compare with chaffing. It is singular to find any practical man at this time of day disputing the usefulness and economy of chaffing fodder in whole or in part, both as a means of avoiding waste and for the facilities it gives for moistening and mixing with other foods; but the exception in this should perhaps be taken to prove the rule, that those who have "never used a chaff cutter" are hardly qualified to offer an opinion to the benefits or otherwise of cut fodder. For many a year the writer followed the chaffing system while farming in Scotland, and can testify to its advantages and economy.

It must be obvious that machinery can cut the tough, woody fibre of corn fodder, straw and even hay, cheaper than the animal can masticate it. On the same principle all corn ears ought to be broken before being fed, saving a large amount of wasteful labor to the animals.

When corn stalks are reduced by machinery the cattle can masticate the entire stalk and digest a large percentage of it. When cut in this manner the tough, flinty rind of the stalk are broken into shreds, and can then be masticated by the stock and nearly all its nutritive matter digested and assimilated.

Another important point in favor of chaffing is that you can prepare foods so that ground feed of any description can be mixed with them to make a savory ration for any purpose, that is, poor hay, straw and corn fodder, with addition of oil meal, cornmeal, bran, middlings or silage, can be turned into a palatable feed. Mix these together and damp with water and a little diluted molasses. Let the mess ferment for twelve hours previous to use, and you will find in such a mixture one admirably adapted for stock in all stages.

By economizing in this way you will be able to avoid feeding too liberally with concentrated food, as well as largely increasing the percentage of your herds and flocks, and surely the present range of low prices should act as an incentive to the farmer to increase his stock.

In order to carry out the effective mixing of meals, you require a spacious feed room, which is seldom met with in America. Where there is a properly organized system of feeding, you can not do without a weighing machine, as in mixing your meals, roots, or whatever it may be, all feed ought to be weighed and properly blended as you consign them to the feed pile.

In order to economize to the utmost, it is essential that the chaff store should be contiguous to the mixing or feed preparing room. There the corn is ground, cake broken and roots pulped, so that all may be in readiness.

It requires great care and sound judgment in blending the foods, so that they will produce the best results at the least cost, with the least possibility of waste, as we have much to learn in economical feeding, the success of the feeder greatly depends on the blending. Let the pulped roots, meals and chaff be mixed the day previous to being fed, and after damping the mass it should be turned over, say a couple of times, to prevent waste or over-heating.

The damping of fodder, whether fed alone or when fed with grain, makes it more digestible, more palatable and succulent. Keep in mind that the satisfactory all round feed is derived from succulent, nutritious grass, so the more closely we imitate the more nearly will the results attained be to those required from June pasture. In all experiments mixed feed has given the largest percentage of digestible matter.

When I mention chaffing to feeders in this country they answer it is too expensive. I never heard one say yes. I could make ten acres

of hay or fodder go as far as thirty acres in the rough, which it would do. The valuable machine on a farm is the weighing machine, and no farm of any extent should be without one.

Before feeding can be termed a science, it must be founded on accurate observation of weights and measures. Measurement is the foundation of science, and if feeding is to be a scientific pursuit, accurate measurements must be introduced into every department of it. To an ordinary scientific observer it must be a great surprise to find how little accurate measurement is going on on a farm, and it must be incredible that on the great majority of farms in the country there is not even a weighing machine on which to weigh animals or farm products.

More observation has carried farmers about as far as they can go, and if they wish to progress further, they must add to observation that which is far more reliable, namely, measurement. Allow me to add that our breeders and feeders have much yet to do to throw a completely satisfactory light on the cost of the production problem. The scales and debit and credit account would be a vast step forward.

In economical feeding let us see what invaluable account we can turn the root crop to, a crop that is much overlooked by American farmers in general.

As a Scotchman, I do not consider any cattle ration perfect without the use of roots. As roots are an expensive crop, we must make the most of them by pulping.

For three score years I have had excellent opportunities of watching the merits and demerits, the advantages and disadvantages of the pulping system, that is, the system of pulping turnips and giving the pulp, chaffed fodder, cake and grain in the form of a mixture to cattle. I have seen it carried out on an elaborate scale, and on a simple manner in almost every agricultural country. The results have been varied; in some cases the practice has been abandoned. This, however, is only what might have been expected, the inevitable result of bad management, or exceptionally unfavorable conditions. The few instances of unsatisfactory results have not in the least shaken my faith in the benefits of the system. The more I have seen of it the more fully convinced I have become that it possesses most useful capabilities, that, by the judicious practice of the "pulping system," the farmer may, as a rule, turn his crops of roots and grain to better account than by the ordinary method of feeding.

The process must be conducted with care and precision. Careful management is essential. The food must be prepared regularly and clearly well mixed, nicely flavored, but not highly fermented. The advantages of the pulping process consists mainly in the saving which it is capable of effecting in turnips, and in the fact that in the pulped mixture stock will readily consume some kinds of fodder, such as chaff, which, while useful and wholesome food, is not palatable when presented by itself in any form. Any system, therefore, which enables the feeder to economize his crops is deserving of careful observation, and should have a fair and patient trial.

The real question to determine is not merely whether pulping increases the labor bill, but whether it enables the farmer to turn his roots, straw and chaff to better account; the pulping system may be "more costly and yet more profitable." To use a farmer's expression it makes the roots "go a great deal further."

By pulping the roots any desired amount of dry fodder can easily be incorporated with them. Besides when a pulped mixture is fed the act of mastication is made short and simple; the animal feeds more quickly, so there is more time to rest.

Another virtue in the pulping system lies in the fact that in the sweet flavored heap of pulped roots cattle readily consume and thrive well upon fodder, such as chaff, which they would not willingly eat by itself.

With mixed foods it is easier to ensure that the ration shall be properly balanced with all the essential elements present in due proportion than when turnips, cake, grain and fodder are each given separately. You can by sprinkling a little condiment or diluted treacle make the pulped mixture an exceedingly inviting one. I trust I have said sufficient to tempt feeders and breeders to give them a trial.

In conclusion, let the feed trough be clean and sweet, and place the food before the cattle in the most tempting form possible; always give sufficient but never any to leave. Let the troughs be thoroughly cleaned within a reasonable time after the feeding hour. It is well known among observant feeders that moderate and not large rations of food should be given. When several small rations are fed the animal has fresh food that has not been selected nor breathed over, consequently it will be more readily eaten. Any food left in the feed troughs soon becomes stale and tainted with the breath of the cattle or any impurity which may be about, with the result that that particular food becomes disgusting to the beast before which it lies, and discourages it from eating afterwards. Steers must grow steadily from birth to death. You must keep the young cattle in a rapid state of progress from birth. This can only be done by skillful blending of food, so as to secure the maximum efficiency with the minimum waste.

Mr. Anderson read the following preambles and resolution which were adopted:

WHEREAS, The provision on page 17 of the Railroad and Warehouse Commissioners' Revised Schedule of Reasonable Maximum Rates for the Transportation of Passengers and Freight, in force July 1, 1895, reading as follows: "Stock cattle and feeders shall take seventy-five per cent. of the rates above fixed for cattle," and as this rule is not being observed by many of the railroads of this State, and,

WHEREAS, There seems a discrepancy between the distance rates on live stock on railway lines in Illinois, as compared with those in adjoining states, and,

WHEREAS, There seems to be a lack of instruction on the part of station agents of railways for the movement of blooded live stock from one community to another, or outside of the State, for the improvement of blood, and believing that the economy of railroad interests are identical with the breeder

in the liberal distribution of all the improved breeds of domestic animals, and that intelligent coöperation will be all that is necessary to bring about an equitable adjustment of these matters, and,

WHEREAS, The Legislature of Illinois has given us the agency through which we can express ourselves in the bureau known as the Railroad and Warehouse Commission; therefore, be it

Resolved, That a committee, consisting of the presidents of the Live Stock Breeders' Associations, be appointed as a committee to confer with the Railroad and Warehouse Commission, and render them such assistance and information as will aid them in putting the live stock industry of Illinois in all its branches on an equality with our neighboring States, and further, that the Secretary of this meeting be instructed to forward a copy of these resolutions to said Railroad and Warehouse Commission.

*Schedule of Proposed Maximum Rates on Cattle, Hogs and Sheep
(C. L.) to apply in State of Illinois.*

Miles.	Rate.	Miles.	Rate.
5.....	4	110.....	9
10.....	4½	120.....	9½
15.....	5	130.....	10
20.....	5	140.....	10
25.....	5½	150.....	10½
30.....	6	160.....	11
35.....	6½	170.....	11
40.....	7	180.....	11½
45.....	7½	190.....	11½
50.....	7½	200.....	12
55.....	7½	210.....	12½
60.....	7½	220.....	13
65.....	7½	230.....	13
70.....	8	240.....	13
75.....	8	250.....	13½
80.....	8½	275.....	14
85.....	8½	300.....	14½
90.....	9	325.....	15
95.....	9	350.....	15½
100.....	9	375.....	16½

Col. Fulkerson moved that a committee of four consisting of the presidents of the Cattle Breeders', Horse Breeders', Swine Breeders' and Sheep Breeders' Associations, namely, A. P. Grout, J. H. Kincaid, Fred H. Rankins and R. M. Bell, be a committee to bring the matter of shipping improved stock before the Railroad and Warehouse Commissioners, soliciting them to procure lower and more just rates of transportation.

Col. Fulkerson moved that the bill now pending in the Senate for appropriation for the benefit of Farmers' Institutes meet the approval of this association: *Provided*, that the proceedings of the live stock associations be printed along with those of the Farmers' Institute, and that a fair proportion of the printed reports be delivered to said association. It was carried.

Mr. Springer moved that a committee of three, of which Mr. Grout shall be chairman, be appointed to urge the Senate and House of Representatives to pass said bill.

Mr. Grout appointed as associate members of this committee J. G. Springer and D. W. Smith.

Upon motion of Col. Fulkerson the association proceeded to elect officers for the ensuing year, which election resulted as follows: For President Hon. LaFayette Funk, Shirley, Illinois; Secretary, J. H. Pickerell, Springfield, Illinois; Treasurer, Charles Ridgely, Springfield, Illinois; Vice-presidents being *ex-officio* the Presidents of the Illinois Live Stock Breeders' Associations.

The Executive Committee consists of the above named officers and the secretaries of the same.

Upon motion, Mr. Springer and Mr. Anderson were made a committee to memorialize the press of this city to report the minutes of our meetings in the future.

Mr. J. S. Cooper, of Chicago, Illinois, who had prepared an address on "Horses" could not be present, but furnished a paper which was read by Mr. Stericker.

HORSES.

GENTLEMEN OF THE ILLINOIS LIVE STOCK BREEDERS ASSOCIATION:—Never in the history of the horse trade was the general course of the market subjected to greater fluctuations and a wider range of values than in the year 1896. During the winter and spring months, stimulated by a foreign demand, the magnitude of which far surpassed any previous year, the market became very active and on those classes specially adapted to the foreign trade an advance in values of fifteen to twenty-five per cent was made. In sympathy with the appreciation in value of those classes the inferior grades were substantially strengthened and in the month of April the demand became so large and urgent that prices almost as high as those recorded from 1890 to 1892 were established. Then came the perplexing problems of finance; the almost inexhaustible agitations through the long dreary months of summer and the train of evils which followed in its wake, demoralizing to trade, paralyzing human effort and industry, from which, even now, many months after the clearing of the smoke of battle, universal stagnation and apathetic indifference confronts us. This condition (which unfortunately for us is no theory) is without a parallel in the history of nations and the cause which could produce it is worthy the analytical investigation of all thinking people. It is a commonly accepted maxim that bountiful crops bring prosperity or vice versa, and yet with two years in succession of unprecedentedly large crops, so large in fact that large quantities have been permitted to lie and rot in the fields, large numbers of people are practically in the throes of starvation; on the brink of destitution, and charitable organizations taxed beyond their resources to cope with the crying evil of the hour. The year 1896, with the exception of the first four months, was one of falling prices—a declining market—until I believe the lowest prices in the history of the trade were established. The causes which have produced this condition are first the universal depression in business and second the substitution of electric for horse power on street railways and finally the extraordinary growth in the use of bicycles, the last two being in my opinion more potent than the former. The conversion of horse-cars into electric motor power acted on the trade like a two edged sword, it removed the vast patronage and purchasing power of transportation companies all over the country for tens of thousands of medium priced horses on the one hand and at the same moment threw upon the different markets regardless of price vast numbers of discarded horses to enter into competition with those in the hands of the breeder and farmer. The bicycle has taken the place of thousands of saddle and light driving horses to such an extent that liveryies, except for funerals and perhaps a few other special features, are for the present a thing of the past. We have seen it stated in the public press, and have no doubt of its correctness, that enormous numbers are being slaughtered, preserved, canned and shipped to China, Japan and Asiatic countries and that vast bands are roaming the ranges which the ranchers are invoking Providence for a North Pole blizzard to exterminate them. But with all these discouraging features I feel confident to predict that the future offers great inducements and handsome rewards to those who will intelligently breed, not a miscellaneous assortment of common horses, but the very best which can be selected with marked individuality and undoubted high breeding and lineage. We have recently seen several noted sales of standard bred stock both at the Union Stock Yards and elsewhere in which the prices realized were largely in excess of the past three years, with keen competition both on the part of foreign and domestic account. At these public sales, all other things being equal, finely bred horses command the top figures and of course are most sought for, but breeding without individuality counts for little, and in a test of speed, the record breaker, as a matter of course, easily carries off the prize. In the

coach and draft classes the same rule obtains. Without a word of disparagement for other breeds, I think the Hackney the highest type of a coach horse, and with his superb action is bound to rank first in public esteem and to command wherever exhibited public applause and the millionaires' ducats. In the recent horse show held in New York City it was demonstrated that a cross between a Hackney and a standard bred mare of fair size would create a distinctively American gentlemen's driver of surpassing beauty, symmetrically proportioned, of ample size and superior action and where great speed was not an essential requisite would fill the highest expectations of a man of leisure.

In years past, in fact for a quarter of a century, I have unswervingly advocated the Percheron as the best and truest type as well as the best selling draft horse. On general principles I see no reason to change this opinion, but the duty of a commission man is not unlike that of a newspaper, to gauge public opinion, ascertain its wants and conform to the general requirement so long as it is for the greatest good of the greatest number. The foreign demand on our market, now amounting to 25,000 annually and growing yearly, is so important that its interests demand and deserve careful consideration, and we find this year for the first time that all of the English and Scotch buyers are not only partial to Clydes and Shires but give all preference to these breeds, and all other things being equal, will give ten dollars a head more for them than any other, and will in many cases pass by and altogether reject a much better Norman. While this is true of the Scot and Englishman the German, who is a large buyer of 1450 to 1600 pound blocks, always gives preference to the Percheron. The situation is therefore a little complicated and if the American buyer did not throw the weight of his influence to the Percheron, which they almost do to a man, honors would be nearly even as between the Englishman on the one hand and the German on the other. Domestic buyers as a rule dislike the hairy-legged Clyde, and except in the case of an extraordinarily good one will not buy them under any circumstances. To those therefore who will produce either of three classes—a gentleman's driver of good size with more or less speed, a coacher of size and superb action and a draft horse not to weigh less than 1700 pounds, the opportunity to reap a rich reward was never. I fancy, better than the near future. In the past four years breeding of all kinds has dwindled to infinitesimally small proportions and this together with the large supplies forced upon the different markets must of necessity, within a year or two, strip the country of all desirable horses and give to those courageous souls who did not desert the ship in its hour of adversity a handsome competence.

Since the first of this year between twenty and forty foreigners have been constantly upon the market operating on a larger scale than any former year, made up about equally of Englishmen, Germans and French with an occasional purchase of nice fancy matched driving teams for Mexico and Guatemala. In the past year the United States government established headquarters at the Union Stock Yards for the purchase of cavalry horses for the entire service, and during that time bought approximately 2,000 head. The standard for this service must be absolutely sound, 950 to 1050 pounds, clean, clear bone, long breezy neck, small fine head, closely coupled and must trot squarely. Uncle Sam, as some of the contractors have fully realized, is not to be trifled with and is not only exacting and rigid in the performance of the contract but insists on a strict compliance with the letter and spirit of the specifications. The nominal price for these is \$125 per head.

The past year, subjected as it was to many vicissitudes, an occasional horse of extraordinary action and quality would flash out like a meteor to brighten the hope of the breeder and command a price so high as to sound something akin to an Arabian tale. It is well known that some teams of coachers sold above \$2,500 and one in particular to an enthusiastic fancier for nearly twice that sum, while draft horse teams have practically sold at \$500. It may be said by some who never look beyond the surface that these figures are rare exceptions, but on the other hand the particular style, action and quality which command these prices are also as few and far between as angels visits.

In the past week the sharp advance made in prices, ranging between ten and thirty per cent., and the largely increased demand demonstrates beyond cavil that with the slightest improvement in the general condition of the country a substantial gain in values would be made.

In conclusion I desire to thank you for the opportunity accorded me to address direct a large number of the best and most progressive farmers and to warn them against shipping horses to any market in a rough, thin and altogether unfinished state and quite frequently only partly; or worse still wholly unbroken. With the exercise of the same business sagacity which guides their course of action when preparing cattle or hogs for market their sales of horses would not only yield them a handsomer revenue but as well make them feel that their efforts were receiving that just recognition which is an incentive to greater endeavor.

J. L. COOPER.

The Secretary was instructed to publish in the proceedings of the meeting the addresses and papers of those who had been selected and had no doubt prepared them, but who could not be present, and include them in the minutes and have them published with the other proceedings.

Upon motion of Mr. Springer, the following resolution was adopted:

Resolved, That when this Association adjourns it will be to again meet in Springfield during the second week in January, 1898, the day to be hereafter announced in conjunction with the meetings of the Illinois Cattle, Horse, Sheep and Swine Breeders' Associations.

Whereupon the meeting adjourned.

J. H. PICKERELL,
Secretary.

ANNUAL MEETING OF THE ILLINOIS CATTLE BREEDERS' ASSOCIATION.

State House, Springfield,

WEDNESDAY, FEBRUARY 24, 1897.

Morning Session—10 o'clock.

Hon. A. P. Groat, *Chairman*.

Address—Hon. A. P. Groat, Winchester, Ill.

Address—"Cattle Exhibits Illinois State Fair"—Hon. J. F. Prather, Williamsville, Ill. Discussion.

Address—"Public Sales Pure Bred Cattle"—Discussion.

Address—"Transportation Pure Bred Cattle"—Hon. A. P. Groat, Winchester, Ill. Discussion.

Address—"Market, Present and Prospective, for Pure Bred Cattle for Breeding Purposes."—Discussion.

Other papers and discussions of matters of interest to Cattle Breeders will receive attention.

OFFICIAL BOARD ILLINOIS CATTLE BREEDERS' ASSOCIATION.

Officers—President, A. P. Groat, Winchester; Vice-President, J. F. Prather, Williamsville; Secretary, J. H. Pickrell, Springfield; Treasurer, Thomas Clark, Beecher.

Executive Committee—W. H. Fulkerson, Jerseyville; T. C. Ponting, Moweaqua; A. P. Groat, Winchester; N. M. Lodge, Monticello.

PROCEEDINGS ANNUAL MEETING ILLINOIS CATTLE BREEDERS' ASSOCIATION.

State House, Springfield, February 24, 1897.

The members of this Association met in the House Judiciary Room, Springfield, Ill., 10 a. m., February 24, 1897.

Called to order by President Groat.

The reading of the minutes of the last meeting was, upon motion, dispensed with.

Upon motion a committee of two was appointed to report officers for another year. Colonel W. H. Fulkerson, Jerseyville, and T. H. Crowder, Bethany, were appointed said committee. Upon consultation the committee recommended the re-election of the present officers, namely: For President, A. P. Groat, Winchester; Vice-President, J. F. Prather, Williamsville; Secretary, J. H. Pickrell, Springfield; Treasurer, Thomas Clark, Beecher.

Executive Committee—Col. W. H. Fulkerson, Jerseyville; N. M. Lodge, Monticello, and T. C. Ponting, Moweaqua.

The report of the committee was unanimously concurred in.

The ex-officio members of the Executive Committee consists of the President, Vice-President, Secretary and Treasurer.

The election of officers of the Illinois Horse Breeders' Association and of the Illinois Hog Breeders' Association having been concluded, these two associations were invited to be present and participate in the discussions of all the papers prepared and to be delivered before the different associations. The invitation was accepted.

President Groat then delivered his address upon "The Transportation of Pure Bred Cattle."

Dr. Babb, of Springfield, then presented his paper on "The Health of Hogs," on which some discussions were had by Mr. Copstake, of Stark county, and others.

Mr. Fred H. Rankin, of Athens, Ill., then proceeded to read his paper upon the subject, "Feeding Hogs for Market."

FEEDING HOGS FOR MARKET.

(By Fred H. Rankin, Athens, Ill.)

So much has been written and spoken regarding the hog that any attempt upon my part to suggest any new ideas regarding the "gentleman who pays the rent" will be simply impossible. What induced your secretary to assign me this subject, or any subject at all, is a mystery; nor is it fair to get me in with such old veteran stockmen, who have been in the business almost as many years as I am old. When we want to learn valuable lessons in regard to any special subject we should apply for information to those who are expert in that subject, and who possess a ripe experience. However, a studious investigation of theories and careful testing of methods bearing on any one department of live stock affords much experience to the beginner.

Nowhere can love of one's occupation prove of greater value than in live stock husbandry, and especially is this true in that important department, the breeding and feeding of swine for market.

Hog growing is today, as well as in past years, one of the most profitable industries connected with the farm when properly understood and managed, and also one of the most disastrous when neglected.

By improvement in the breeds of hogs and knowledge gained as to best methods of care and feeding, the road to the pork barrel has been greatly shortened, until now many of our farmers produce pigs that weigh 200 pounds or more at six months of age and bring the highest market price. The day of the big, fat hog is passed; the lardy hog is no longer wanted. The well

finished young hogs of 175 to 250 pounds will pay better and find ready sale so long as packers and lard refiners find more profit in compounding cottonseed oil, stearine and lard.

There is no question but that the cost of the product is greatly reduced by pushing for early maturity and producing "pig pork," as is also the risk of loss from disease. In the production of pig pork good stock must be the foundation. It is not in place at this time to laud any special breed, for we have several breeds which have been so wisely bred as to establish the qualities needful to profitably produce pig pork, the selection of which is largely a matter of taste to the feeder. However, I am constrained to say that the farmer of the future must demand sows that can farrow and suckle large litters of healthy, vigorous pigs, even if the double curls in their tails are not tied up with blue ribbons. In short, I care not what the fancy points of any breed of hogs may be, unless they will stand the test of the pork barrel, they are not a profitable hog for the farmers to raise. He must keep in mind that the ultimate end of hog is in the pork barrel; the best hog is the one that goes into it with the most profit. It should also be remembered that the primary purpose of the brood sow is to raise pigs, and the best sow is the one that will grow the most and best pigs at the least expense. For we are looking at the subject from the feeder's standpoint, and not from that of a breeder of recorded stock for the trade.

Good pigs are not accidentally produced. The Egyptians could not make bricks without straw, neither can we produce good pigs unless we give due regard to blood lines and individual type. Select your breeding animals early, and get them in proper condition for breeding. To secure large litters of strong, healthy pigs it is necessary to have both sire and dam in perfect health at time of mating, and from then on feed liberally on bone and muscle forming feeds.

The good brood sows should be large and long, and deep bodied, neat head, and broad between the eyes, medium sized flinty bone, and large heart girth, which is very essential, as indicating well developed vital organs, and consequently a vigorous constitution. Select your sows from dams that are kind mothers, good sucklers, prolific, and of quiet disposition. If a sow possesses these qualities, and is a good breeder, keep her as long as you can, for she is like unto the goose that lays the golden egg.

In selecting between extremes we would prefer the dam to be the larger and coarser, and then tone down with the sire, who should be of a more compact build.

Keep grade sows, if you must, the higher the grade the better, but use only a thoroughbred male of the same breed as the sows, as good an individual as you can find and pay for, one whose blood lines are noted for their good producing qualities. Select the breed which is best adapted to your needs and tastes and stick to it. It is the only way to grade up or keep up a high grade. Do not cross breed. Sometimes a single out-cross gives very satisfactory results, but we do not advise it. Your buyer will usually pay you a higher price for hogs of a uniform type, even size and solid colors than he will where all the porcine shapes are represented and arrayed in nearly all the colors of the rainbow—black, red and white, and many doubtful intermediate shades.

I especially emphasize for the farmer the advantages of having the sows of the herd farrow as nearly the same time as possible. You will be more inclined to devote to them your careful personal attention, and then there is no one more desirable feature in a bunch of shoates, and no feature that more impresses the buyer, be he breeder or shipper, than an even, well-kept bunch of pigs.

If they are farrowed the same month, and can be weaned about the same time, and the sows all go off to the clover field, out of the sight and hearing of the pigs, the chances are the pigs will do better and feed more evenly than if weaned at different periods.

It is a good general rule to not breed young sows before they are eight or nine months old. There are conditions where it might be advisable to vary either way.

More depends upon the care of the sow before the pigs are born than many think; the diet should be varied and largely of bulky, cooling food, and of a kind not calculated to produce fat, roots are better and cheaper than corn alone; beets and mangolds are good. Personally I have found the French white artichoke, in its season, very valuable; have raised a large patch for several years and do not find them hard to eradicate, if properly handled.

Run clover hay through the cutter and mix it with a little bran or shorts in a slop and the sows will relish it, as also will they enjoy a frequent feed of clover hay.

When the sow starts to make her bed give her a good feed of bran and short slop, then, after farrowing, the sow should be left quietly for several hours, and then she should be watered; if the weather is cold the water should be warm. Do not give her any feed for twenty-four hours, then give a little bran with some shorts or ground oats mixed with warm water. A quart of this is enough. Continue to feed very light for several days, increasing the amount until the pigs are two weeks old, by which time you can feed liberally of shorts and bran and roots. If grass is available it is your best feed.

The critical time with the brood sow is the first two weeks after she farrows. Many pigs are lost by over-feeding the mother with corn and giving chilling drinks, which produces indigestion and fever which dries up her milk and leaves the pigs to starve, or if they live, stunts them in their earlier growth. No iron-clad rule for feeding will do; of a dozen sows no two are exactly alike, hence the necessity of having them in separate pens. One may have a voracious appetite and need holding back, or you will soon have a dyspeptic patient on your hands. Another may have but little appetite, generally caused by fever in the milk glands, in which case bathe the parts with cool water and apply a little sweet oil with a drop or two of carbolic acid to prevent canker sore mouth in the pigs. Above all things, keep your sows bedded with clean, dry straw, and give them all the sunlight possible. Damp nests are fatal to young litters.

Exercise is absolutely necessary for young pigs, especially if the sow suckles well. In this way prevent thumps, which carries off the finest of the litter. Some tell us to give digitalis as a remedy, but if you keep your pigs confined without exercise and the sow furnish all the milk the little gluttons can draw, it is useless to doctor with digitalis. We never saw a case of thumps where the sow and pigs had exercise enough. The better the sow the greater the danger of loss in the litter from thumps, and the more need of exercise. Taken in time we consider there is less danger from thumps than colds or scours. This trouble can easily be brought on by just one over-feeding of the sow or young pigs, or by one feed of sour, fermented swill. Guard against this by not over-feeding the sow for the first ten days after farrowing.

Teach the pigs to eat as early as possible. Tole them into a little pen with shelled corn, where they can find a shallow trough with sweet milk, and soon they will be eating nicely.

Pigs should be eating so regularly and so much that there be no loss in gain at weaning time. During the first four months of the pig's life do not feed too much corn. We must feed for bone and muscle, not for fat.

The secret in producing cheap pork is maintaining a steady gain and a high degree of health and vigor from start to finish.

At the Wisconsin Experiment Station experiments were made in which two lots of pigs were fed for a given time, one lot on corn alone, the other on a well-balanced ration. A careful dissection and examination showed that the hogs fed for lean (that is the term used) showed that the per cent. of blood and muscle was larger, and the vital organs—heart, liver, kidneys and lungs—

were from ten to fifteen per cent. heavier than those of corn-fed hogs, and what is most striking, that while the thigh bones of the corn-fed hogs placed in the testing machine crushed at a pressure of about three hundred pounds, those of the hogs fed on a well-balanced ration sustained a pressure of nearly one thousand pounds. This test, which is authentic, affords much material for the thoughtful mind.

The experiments of Profs. Henry, Sandborn and others in feeding for lean meat and strong bone are of inestimable value to the farmers of America. They show the possibilities and limitations of corn, supplemented with other feeds, which can be, to a large extent, produced on every farm, in the way of roots, pumpkins, etc. In the "corn belt" that cereal will always be our best and main ration for fattening swine; but grow them largely on clover, grass, roots and mill feed. Pork produced in this way is of better quality, and is produced at less risk than where the animal is both grown and fattened on corn exclusively.

Feed new corn sparingly. Wait until it is ripe before you use much of it, even if the cash value of old corn is much higher. I look on new corn alone as rather a dangerous feed. When you change feeds of any kind do so gradually and carefully. Always remember that clover is the feed for growing swine. Clover is our cheapest and best hog feed, and every farmer should utilize all of it that he can in its season; and when it is gone your blue grass.

The Scotch have a saying that "The eye of the master fattens his stock," and this is true in feeding hogs for market, for even pig feeds must be mixed with or rather by brains.

Use disinfectants freely and such preventatives of disease in way of charcoal, ashes, salt, copperas and sulphur as in your judgment is needed, and tolerate no vermin in your herd. The hogs will keep themselves free of them if you will put a few short stakes rapped with rags kept saturated with coal-oil emulsion near their sleeping quarters.

Keep your hogs supplied at all times with pure water, which can easily be done by using some of the many automatic drinking founts now in general use.

Treat your hogs kindly and so secure that contentment and kindly feeling and growing qualities which contributes much towards making a profit.

We have all heard how in ancient Judea the demons on one occasion entered into a herd of swine, and they straight way ran down into the sea and were drowned. But it should be noted that these demons had first been the familiar spirits of the people. And so I always suspect that when a lot of hogs act like the devil was in them there must be a little of the same old boy in their owners. Like human, like hog.

While we have our occasional year of low prices, I doubt if any other farm product pays better to the farmer who persistently follows the business of producing pig pork.

No domestic animal on the farm in Illinois requires closer attention than swine, and none will pay you for your time so well. But if you do not like the business, and are not disposed to give it your close personal attention, the writer would advise you to turn your attention to other industries and sell every hog you have, or you will probably be obliged sooner or later to find your ledger getting heavy on the wrong side.

A telegram having been received from A. J. Lovejoy, Roscoe, Ill., who had been invited to deliver an address on the subject of "Hogs for the Illinois Farmer," stating that it would be impossible for him to be present on account of the death of his father, it was moved that a telegram be sent Mr. Lovejoy expressing regret at his inability to attend and sympathy from those present in his sad bereavement.

Mr. F. J. Berry, Chicago, Ill., proceeded to address the meeting on the subject of "Horses for the American Market."

THE AMERICAN HORSE.

By F. J. Berry. Delivered before the Live Stock Breeders' Association, at Springfield, Ill., February 25th.

MR. PRESIDENT AND FELLOW CITIZENS:—It gives me great pleasure to appear before you here today. I always feel very much at home with farmers and breeders. I was raised on a farm in New England, and have been interested in farming all my life. Of late years I have been farming quite extensively, and am thoroughly familiar with every branch of farming, and well do I realize that every dollar that a farmer saves is the product of hard labor and well directed toil.

As a breeder and trainer I have had a large experience, and have been an extensive dealer in horses for forty years, selling as high as 27,000 horses in one year. I am here today to talk to you on "The American Horse," and at the close of my remarks will try and answer your questions and give you any information you may wish on this question.

Producing the American horse and fitting him for the market is a great and important question at this particular time. We have been going through a great depression of all values, which has worked a great hardship and has been very disastrous to one of our most important industries, but I want to say that the day of low prices for good horses has passed. We are on an upward wave, and the future is bright and full of hope. The export demand is very encouraging. A demand which has very nearly all sprung up within the last three or four years, and has become the leading feature of our market. It has nearly doubled every year for the last three years, and last year (1896) 35,000 horses were sold for export. Judging from the correspondence of F. J. Berry & Co. with the foreign buyers we predict that the foreign markets will take 50,000 or more horses in 1897. This, with the increasing home demand for good stock, is very encouraging. Our demand is already very much stronger, and prices on an average have advanced 10 to 15 per cent., and far more than that on certain kinds.

There has been a marked improvement in the prices of good horses in all of our special and high class sales. In our fall combination sale of trotting stock it sold 15 per cent. higher than at any time during the previous two years. In our February sale the trotting stock sold fully 25 per cent. to 40 per cent. higher than two years ago, and the higher the class of stock the more it has improved in price.

The study before us today is, what kind of horses shall we produce to obtain the best results? So, let us profit by the failures of others, as experience is the best school master. We will not go into details of the great disasters and failures of former breeders, more than to say that a few years ago we had a few men of intelligence who were conducting scientific breeding. Men of intelligence, and men who were making a success and producing fine horses and speed, and their success stimulated the masses to undertake the same thing, to try to produce extreme speed. The result of such promiscuous breeding was an over-production of trotting stock which was not adapted to

any serviceable use, the leading object being to produce speed. Pedigrees, only, were taken into consideration, so all that could be said in favor of 80 per cent. of them was that they had a pedigree. This class of breeders made a failure of it, and have gone out of the business. Although it has been an expensive experiment, still, like the Chicago fire, it was not without its benefits, and breeding will be done on a more scientific principle in the future.

While the Chicago fire was disastrous to the people of that date and wiped them out of existence, their places were filled by stronger men with capital, which has resulted in a more beautiful city, and the second city in the union.

So, the breeding problem is revolutionized, and we are now starting on a new era in the breeding world. The business is left to the more intelligent men, men of means, and men who breed to a purpose. Men who study the demands of the market, and as we have said, the export demand is the leading feature of this market, and the same kinds of horses that sell well for the export trade are in the strongest demand for our home markets.

I will classify the expert demand into five different classes.

1st. Drivers and coachers, which must be well bred, of good color, from 15.3 to 16½ hands, with fine head and neck, plenty of bone and substance, with good knee-action and plenty of quality. They must be good travelers and if they have some speed all the better. This class of horses has already advanced very much in price, and very soon will be as high priced as ever. Present values range from \$150 to \$300 per horse.

2nd The cab horse, weighing about 1,100 pounds, 15½ hands, a rugged but smooth made horse, with bone and substance, and a fair traveler. Present price averages about \$75.

3rd. The bus horse, weighing from 1,200 to 1,400 pounds, 16 hands, smooth, rugged made, and one that can move off at a fair gait and shape himself well in harness. Present price from \$80 to \$125.

4th. The draft horse, which should weigh from 1,500 to 1,800 pounds, should be rugged made, good bone, and blocky built, with smooth finish and a first-class draft horse in every respect. Present price from \$100 to \$200.

5th. The American trotter, which in all cases must be a high bred horse, with plenty of bone and action, and substance, high finish, good disposition, and the more speed he has the higher price he will bring. Ranging in price from \$200 to \$5,000 per horse, according to his quality, size and speed.

All horses for exportation must be perfectly sound and without blemish, and are bringing at present a higher range of prices than horses sold for any other market. There are two kinds of horses that are more profitable to produce for the American markets than any other, viz.: The highest class of light harness and the best quality of heavy draft.

First—All classes of light harness horses should be well bred. The Hambletonians are the stock to breed all light harness horses from. In my opinion there is none better than the Wilkes family. They have plenty of ambition and all possess some speed and knee action. Knee-action being the most important quality in all horses, except soundness. Light harness horses must possess all the qualities required up to the present date, such as size, shape, quality, knee-action, color, and the more speed and breeding the better. Progressive breeders, from this on, will take all of these qualities into account that are necessary to make a horse useful and saleable in the market, and one very important quality is the size. The standard is raised every year. The market demands larger horses. No light harness horse should be less than 15.3 to 16½ hands. A small horse, unless he has speed, is the cheapest kind of horse in our market. He is a thing of the past and will not sell for one-half of what it cost to produce him.

Second—The largest and highest finished draft horses that we can produce, drafty made, with plenty of bone and action, with ambition and kind disposition, is one of the most saleable horses that is offered in our market. They have already become scarce and have advanced more in price than any other class of work horses.

I believe that the future offers every inducement and promise of returning prosperity, and with it a return of high prices as our supply is fast decreasing. The visible supply of horses in 1894 was 16,000,000, while in the latter part of 1896 we had less than 15,000,000, and it is predicted, by good authority, that near the close of 1897 our visible supply will be near 14,000,000 horses.

The great depression that we have passed through has called a halt upon the breeding of horses. We have taken quite a good deal of pains to investigate this matter, and we find, as reported by the different assessors through the horse sections, that during the last three years there has been bred only from 5 per cent. to 10 per cent. of the usual crop of colts, this being hardly enough to supply farmers with horses for their own use. Thus, indicating a continual decrease in the supply for a number of years to come. As the law of supply and demand governs our prices we believe it safe to say that higher prices for horses will soon return, and before horses can be raised and prepared for the market, good, useful horses for legitimate use will be as high as they ever were. We believe in American industries. We believe in the return of prosperity and with it higher prices for our American products.

We do not wish to discuss any political question, we only wish to give our idea of how prosperity is to return. We can not expect much relief or benefit from the incoming administration in much less than one year, anything farther than every one knowing the policy of the new administration which will foreshadow prosperity to that extent that we will see a little increase in business and prices for the next year. We further believe that when a new tariff bill shall go into effect that it will call a halt in the importation of free goods. This will make a demand for domestic goods, which will cause our

manufactures to start. Labor will be employed; money will come out of its hiding places and will be paid for labor, and, as labor is a money circulating medium, it will put money into circulation, and this will create a demand for our American products, and here is where prosperity will return.

I was talking with a gentleman from New York the other day, and he asked me where the confidence and prosperity were we were preaching last fall. I said to him, don't you see any of it? He answered, a little. I replied, if you had a friend who was sick, and you should call a physician and he should respond "I am coming," would you look for any benefit before he arrived, and would you look for any relief before the first prescription was filled, or would you wait for results before passing an opinion? I want to say to you that the great physician has been called. As the whale rescued Jonah from the briny deep, took him to shore and landed him safe on dry land, even so with this great statesman, Wm. McKinley, at the helm of our great commercial and financial ship, shall bring her to harbor and land 70,000,000 of distressed people safe into the arms of prosperity.

DISCUSSION.

Mr. Foster, of Iroquois, asked what class of draft horses was best.

Mr. Berry replied that the first class of each, and declined to go into details as to the value to be put on the different breeds of draft horses, which, after some discussion, he was permitted to do.

Mr. J. K. Fireley wished to know about the demand at the present time as compared to 1890.

Mr. Berry estimated that 90 per cent. of the street car horses had been dispensed with; but on the other hand, city folk had gone further into the country on account of the rapid transportation, having street cars to carry them swiftly to the city, and, as a consequence, they kept more horses, which, with other demands, nearly keeps up the demand.

Mr. John Landrigan asked "How horses should be trained and at what ages they should be offered for market," etc. The answer was from 5 to 8 years, and for light harness horses, colts should be haltered as soon as possible and broke to harness from 18 months up and properly fed before offered to the market. Draft horses should be broke at 2 years and then well drilled before marketed. They need not be harnessed in the sale ring, as they can be moved by the halter about as well as if harnessed.

Some one inquired if the low price for horses in this country had not caused an increased demand for exports. His reply was that such was a fact to some extent, but that the foreigners having more good times and prosperity than they used to have also increased the demand.

Mr. Fireley asked if horses ever returned from abroad.

The answer was "no," while street car horses frequently come back to the farms.

Mr. Francis wished to know if horses would increase in value in this country if the foreign demand would continue.

The answer was that for light horses the demand might not continue, but that draft horses would always be in demand. Mr. Berry stated that he knew now where 100 horses suitable for city driving could be sold for good prices.

Mr. Smith asked whether the sexes of horses made any difference in their prices.

The reply was that for driving horses of the best quality that geldings sold the highest, but for common uses it made no difference. That mares of the highest class of trotting still were sold higher than geldings.

Some gentleman stated that he read frequently advertisements in the papers of horses that were said to be of the best quality for driving horses, and could be bought at very low figures, and wished to know why they were so advertised.

Mr. Berry replied that such advertisers were almost universally frauds, and that if the sales were made that the parties who made them generally disappeared, so that the purchaser could find no redress.

In regard to the gaits of driving horses, trotters or pacers, Mr. Berry stated that more speed could generally be had for less money by taking a pacer, and that was one reason why they were in good demand, and also explained Mr. Landrigan's query, "Why a gentleman saw on the boulevards in Chicago during the sleighing season more pacers than trotters?" stating that snow brought out all the pacers, but did not have the same effect upon the trotters.

Mr. J. F. Prather, of Williamsville, then read a paper on "Cattle Exhibits of the Illinois State Fair," as follows:

Not only the cattle men but all interested in live stock and the development of the great resources of our State must certainly look with pride upon our beautiful fair grounds. Illinois, depending on agriculture in almost its entire extent, I think no one will complain of the money now spent, or what may be used in the future to make it the fair of all fairs. No sooner had the fair been permanently located than it was looked upon as the battle royal and the final contest of our dumb friends. Go with me through the horse and cattle barns, the hog and sheep pens, all filled with rare specimens of their kind. View the parade of draft horses, saddlers, roadsters and ponies, all useful and attractive, but the grandest show of all to me was the cattle display, as they were drawn up before the amphitheatre. The proud and beautiful Shorthorn, the symmetrical Angus, the sweet faced Herford, all waiting to make one of the most beautiful displays to be seen. No wonder many an owner was deterred from entering this arena with his stock, after spending months in feeding and grooming for this occasion. But where did these fine herds hail from? They came from sister states on the north, on the east and on the west, but only a small portion from our own State. Only a few short years have passed when it would have been thought the height of folly for an outsider to do battle in our midst. Now all seems to be changed, and it is seldom the ribbon flutters from the halter of an Illinois herd. I well know the expense and worry attached to fitting up a herd for show, and could not find fault with any of our breeders for not preparing for this one show. Yet we have a number of fine herds that are fitted each year for show that fail to attend the State Fair. How can we, as an association, induce our cattlemen to come to the front in this matter and show to the world (when we have such a grand opportunity) that Illinois is not only equal, but the peer of any of our sister states in the breeding of good cattle. This one thought entered my mind when I saw I was expected to say something on the Cattle Exhibits, Illinois State Fair.

What I have said I want to apply to the milk breeds as well as to the beef. In fact, I think the milk breeds have not had the attention they should have had, but think this will all be different when we get a pavillion to show our stock in. Now, if we can offer no inducements in a financial way to encourage the cattle breeders of our State, let each member make an extra effort in getting out a great show of Illinois stock. If in any way we should succeed, what does it mean? It means a great lesson to thousands of farmers who attend our fair to look with pride and interest at his neighbor's stock. It puts him to thinking that he might have some equally as good. It means a new life to the farmer and his family. It means a home market for a vast amount of our corn crop. It means a building up of our lands, improvements on our farms, happier homes and better times. This is no dream or fairy tale, but a possibility that could soon be brought about. The time is ripe. One section of the country demands the Jersey, Holstein or some other strain of the milk breeds, another the beef. While we can not all build up herds that would be as valuable as the Bates, the Booth, Renick or Cruickshank, I believe it possible for every farmer in this country to have and to keep at a profit a small but select herd of cows. These ideas may be at variance with

what the committee had in mind when selecting this subject, but if our fair is not an educator it is a failure and the large amount of money being spent is a waste. Let our State Board go ahead, beautify, improve and make so attractive our exhibition that our own people and the people from neighboring states will be drawn together in an annual pilgrimage to the greatest agricultural fair in the country. Now, as cattle breeders, cattle feeders, are we not to derive any benefits from it? Are we to sit still and allow neighboring states to fatten at our expense? When we have not only taught the land owner but the tenant that good cattle are a necessary adjunct to successful farming (as our British consins have known for years) we have accomplished a great work. Nothing will advance that fact so well and so thoroughly as our cattle exhibit at the State Fair.

A motion to adjourn and meet at the Supreme Court Room at 8:30 a. m. to-morrow carried.

J. H. PICKRELL, *Secretary*.

SUPREME COURT ROOM, CAPITOL BUILDING, SPRINGFIELD, ILLINOIS, FEBRUARY 26, 1897.

The Illinois Cattle and other Live Stock Breeders' Association met as per adjournment of the 25th inst.

President Groat in the chair and J. H. Pickrell Secretary.

After an informal discussion of various topics, the hour having arrived for the meeting of the Illinois Live Stock Breeders' Association, upon motion, adjourned.

J. H. PICKRELL, *Secretary*.

ANNUAL MEETING OF THE ILLINOIS HORSE BREEDERS' ASSOCIATION.

THURSDAY, FEBRUARY 25, 1897.

Morning Session—10 o'clock.

State House, Springfield, Ill.

Hon. Charles Ridgely *Chairman*.

Address of Welcome—Mr. Charles Ridgely, Springfield, Ill.

Response—Mr. George Williams, Athens, Ill.

"The Horse for the American Market"—Mr. F. J. Berry, Chicago, Ill.

"The Morgan Horse"—Hon. A. F. Moore, Polo, Ill.

"The Shetland Pony"—Hon. E. C. Pace, Ashley, Ill.

"The Coach Horse"—Mr. R. P. Stericker, Springfield, Ill.

"The Draft Horse in Illinois"—Mr. B. F. Pickrell, Lanesville, Ill.

Discussion of above subjects.

OFFICIAL BOARD ILLINOIS HORSE BREEDERS' ASSOCIATION.

Officers—President, Charles Ridgely, Springfield; Vice-President, Robert Holloway, Alexis; Secretaey, R. P. Stericker, Springfield; Treasurer, J. F. Smith, Auburn.

Execentive Committee—M. W. Dunham, Wayne; J. M. Simpson, Palmer; E. C. Pace, Ashley; J. Tabor Mather, Jacksonville; A. F. Moore, Polo.

ANNUAL MEETING OF THE ILLINOIS SWINE BREEDERS' ASSOCIATION.

State House, Springfield.

THURSDAY, FEBRUARY 25, 1897.

Morning Session—10 o'clock.

Hon. Charles E. Vigal, *Chairman*.

Address of Welcome—Hon. C. E. Vigal, New City, Ill.

Address—"Health of Hogs"—Dr. Albert Babb, Springfield, Ill.

Address—"Feeding Hogs for Market"—Mr. Fred H. Rankin, Athens, Ill.

Address—"Hog of the Future"—Mr. James Baynes, Chicago.

Address—"Hogs for the Illinois Farmer"—Hon. A. J. Lovejoy, Roscoe, Ill.

Address—"The Berkshire Hog"—Prof. Thomas Shaw, St. Paul, Minn.

Address—"Preparing Hogs for the Show Ring"—Mr. J. D. Primm, Athens, Ill.

Address—"Public Sale of Hogs"—Mr. D. P. McCracken, Paxton, Ill.

Discussion of above topics.

OFFICIAL BOARD ILLINOIS SWINE BREEDERS' ASSOCIATION.

Officers—President, Charles E. Vigal, New City; Vice-President, W. E. Robinson, Greenville; Secretary, Charles F. Mills, Springfield; Treasurer, J. R. Fulkerson, Jerseyville.

Executive Committee—A. J. Lovejoy, Roscoe; W. A. Young, Butler; J. A. Countryman, Lindenwood; G. W. Trone, Rushville.

PROCEEDINGS ANNUAL MEETING ILLINOIS SWINE BREEDERS' ASSOCIATION.

State House, Springfield.

Thursday, February 25, 1897.

The meeting was held in the Senate Judiciary Committee Room, State House and was called to order at 10 o'clock a. m., by the Secretary in the absence of President C. E. Vigal.

Mr. Fred Rankin, of Athens, was made temporary Chairman.

The proceedings of the last meeting held January 8, 1896, having been published in the annual report of the Illinois Farmers' Institute, it was voted to dispense with the reading of the minutes.

Mr. Joseph R. Fulkerson, Treasurer, reported having secured seven dollars for membership, that five dollars had been expended on account of printing and distributing the programs of the meeting, leaving a balance of two dollars in the treasury.

The report was received and on motion approved.

The following paper, prepared by Thomas Shaw, of St. Paul, Minn., on "The Berkshire Hog" was read and ordered printed in the proceedings:

THE BERKSHIRE HOG.

By Prof. Thomas Shaw, University of Minnesota

THE HISTORY OF BERKSHIRES.

This famous breed of swine originated in the southern part of England. They are so named from Berkshire, in which they have long been numerously bred, but probably even greater improvement was made on the breed in the counties of Leicester and Stafford. It is not improbable that the original Berkshire is of similar ancestry with the Tamworth. It was large, ungainly and somewhat coarse in form, but was possessed of stamina, vigor and prolificacy in a marked degree. The color was tawny, white or reddish brown, spotted with black.

The improvement of Burkshires could not have commenced much later than the middle of the last century, as they were possessed of superior qualities years before its close. The improvement begun thus early has been continuous and progressive down to the present day. Hence the Berkshire was never more capable than now of fulfilling the high mission which nature and man seem to have agreed in assigning to it. That mission is the production of a fine quality of meat at a minimum of cost, but most of all, the engrafting of its own splendid qualities upon the common races of swine in Anglo-Saxon speaking countries. But in some instances this great good has been hindered by foolish breeders, who have sacrificed useful qualities for over-refinement.

The precise steps taken at the first to improve Berkshires are not very well known. But it is now pretty generally conceded that Chinese, Siamese and Neopolitan crosses were used, and probably in the order named. But the extent to which the blood of each was used will be forever hidden by a silent past.

The name of Lord Barrington shines out most brightly in the firmanent of the early improvers of Berkshires. But Richard Astley is a close second. Along with these are quietly slumbering a host of others who assisted in Berkshire improvement. They rest, but the great work goes marching on. Among the later improvers, Hewer, Bailey, Swindon and Swanwick are stars of the first magnitude.

The distribution of Berkshires is in a sense world wide. They have followed in the wake of Anglo-Saxon colonization the world over. And the English Berkshire is being utilized in many lands to-day where the English tongue is not spoken. They have long been recognized as the most valuable breed in the southwestern and mid-land counties of England. They have greatly improved the pork producing powers of many of the native races of swine in Ireland. And they have gained free access to many a sty in Continental Europe, in Asia, in Australia, in New Zealand and in South America.

Introduced into the United States in 1823, they have in a sense overspread the whole country, insomuch that either in the pure form or as represented in their grade descendants, and in the blood ele-

ments they have imparted to other pure breeds, it may be said that they fill the land. The American Berkshire Association, organized in 1875, is now represented by Vice-Presidents in twenty-three states and provinces of this Northern Hemisphere. Nearly 37,000 pure bred animals have already been recorded, and the animal registration of pure breeds now numbers about 5,000.

Berkshires were introduced into Canada in 1838. Up to the present time 7,207 representatives of the breed have been recorded, while the record of all other pure breeds combined is but 7,636. And in nearly all the provinces of that country the renovation of the common races has been brought about chiefly through the free use of Berkshire blood.

And Berkshire blood has been freely used in the formation and perfecting of various other useful breeds, as for instance the Essex and Poland China. The Berkshire cross introduced in 1835, and continued for a number of years, imparted or at least accentuated the black color in Poland Chinas, gave to them improved symmetry and increased activity, and imparted additional strength to the limbs. The color markings of the Poland China are now almost identical with those of the Berkshire. And there is a deep significance in the fact that in the ideal form of the Poland Chinas, the leading essentials bear a close resemblance to the same in the Berkshires.

With singular unanimity live stock historians have borne testimony directly or indirectly to the general utility of Berkshires, as witnessed in the statements of London, Youatt, Sidney, Coleman and many others. The one exception seems to be the disparaging statements made by the author of that very useful book, "The Hog in America." It will always be a matter of regret that one so gifted should have so far forgotten himself as to hang up before the gaze of all succeeding centuries, his evident lack of knowledge with reference to the true merits of Berkshire swine.

It is evident, therefore, that Berkshires are cosmopolitan to a greater extent than any other breed of swine. What Shorthorns have accomplished for beef production, they have achieved for pork production. Will they retain this vantage ground? Superior merit has placed the Berkshires where they are, and only by the retention of superior merit can they hold the fort in this utilitarian age. Let the breeders, therefore, govern themselves accordingly.

THE LEADING CHARACTERISTICS OF BERKSHIRE SWINE.

There is a distinction, though not always easily defined between characteristics and standard points. The former relate chiefly to form and color, but sometimes to size and general appearance, while the latter relate to qualities. But as qualities are in a great measure the outcome of form, the relation between these is so close that they can not always be considered separately. Size, for instance, is a standard point, and yet it is also a quality.

The leading characteristics of Berkshires are such as relate to size, vigor, early maturity, feeding, grazing and breeding qualities; quality of the meat; value in crossing and grading; and general adaptability.

Size.—The relative size of any breed of swine is not easily defined, owing, first, to the lack of recognized standards of comparison; and second, to the variations in size in any cosmopolitan breed like the Berkshire growing out of surrounding conditions. But, among the middle breeds, they may be classed as large, and the aim should be to maintain size without sacrificing other good qualities, for size is an important recommendation in the eyes of the average purchaser.

Vigor.—The marked vigor and stamina of Berkshires arises in part from the composite character of the early ancestry, but more from the nitrogenous character of the food given to them in other than in corn growing countries. Their proved ability to bear up well under forced feeding, their comparative immunity from disease, and the extent to which they have been used in crossing and up-grading furnish undeniable evidence of superior vigor, a quality of indispensable value in this age of high feeding tendencies.

Early Maturing Qualities.—Experience has demonstrated over and over again that Berkshires may be finished in good form for the market at almost any age. Maturity with them may be deferred to secure larger growth, as it can not be with some of the smaller breeds; and it may be hastened to capture a special market, as it can not be with some of the larger breeds. With judicious feeding an ordinary feeder may have Berkshires on their grades ready for market at an average live weight of, say, two hundred pounds when six months old.

Feeding Qualities.—The high grade of the feeding qualities of Berkshires will not be questioned by anyone who understands them. These are the outcome of a quiet disposition that does not chafe under confinement; of excellent digestion and food assimilation, the result of centuries of careful breeding and selection; of inherent vigor of constitution; and of strength of bone which sustains them under forced feeding.

Grazing Qualities.—The grazing qualities of Berkshires are unexcelled. This arises, first, from the happy equilibrium of development in the form; second from the excellent quality of the limbs with which they support and carry about their well-developed bodies; third, from their peaceable disposition; and fourth, from their admirable powers of digestion.

Breeding Qualities.—These are at least average; although, as with some other breeds they have been somewhat impaired by the desire for what may be termed over-refinement in form. When sows rangy rather than chubby in shapes are chosen, and when boars and sows are given nitrogenous food and ample liberty, Berkshires are magnificent breeders.

Quality of the Meat.—The high quality of the meat in Berkshires properly fed is witnessed, first, in its great suitability for the farmers, owing to the happy blending of the fat and lean; second, in the ready access which it gains to any market; and third, in the extent to which Berkshire blood is sought for in crossing and grading.

Value in Crossing and Grading.—As attested by history, Berkshires have been far more used than any other breed in crossing and up-grading. Several breeds in England and Ireland owe much of their excellence to Berkshire blood. That excellent and popular breed, the Poland China, had the topstone of its perfection put upon it by Berkshires. In Great Britain and Canada they have been used to a greater extent in improving the common stocks of the country than any other breed, and the same is probably true of the United States. Excellence in form, inherent vigor, and purity of breeding, long and carefully conducted, give them transforming power in a remarkable degree. And the intermediate ground which they occupy in size admits of their being used on common stocks in the production of pigs of a size adapted to any market, when due care is exercised in selection and mating.

General Adaptability.—Berkshires unquestionably occupy a foremost place among all the improved breeds in general adaptability. Their medium size fits them for nearly all conditions of soil productiveness. Their inherent vigor of constitution enables them to endure well the rigors of climate, fortifies them against disease, and gives them power to infuse fresh vigor into enervated breeds. The plasticity in their maturing qualities gives the grower power to get them ready for market at any desired age. Their good feeding qualities admit of their being finished rapidly and at small cost. Their excellent grazing qualities enable the grower to make meat at small expense. Their average breeding qualities are favorable to satisfactory increase, and their unrivalled usefulness in grading up and improving the common stocks of the country has placed a seal upon their adaptability which no power of logic can remove.

FEEDING THE BERKSHIRE BARROW FOR PROFIT AND QUALITY OF PRODUCT.

Berkshire males intended for barrows should be castrated when not more than three or four weeks old, as when done then the hindrance to growth is scarcely perceptible. But pure bred males can not always be castrated thus early, as imperfections in development which lead to their rejection for breeding uses do not always appear when the pigs are young. When castration is long deferred the meat value is lessened through undue development in some of the less valuable parts of the carcass.

If but one litter is reared per year the young pigs, in the absence of skim milk, may learn to eat with the dam. Equal parts by weight of wheat bran or ground oats, shorts, and ground peas or corn, scalded or steamed in winter and fed warm, but simply soaked in summer, would furnish a model ration for a brood sow nursing her pigs.

Ample and suitable trough room would be a necessity. Skim milk, if available, could be fed directly to the dam, but with probably more profit to the young pigs.

When two litters are reared, the pigs should get skim milk in a low trough and apart from the dam as soon as they will take it. It should be given sweet and warm and frequently renewed. Shorts in gradually increasing quantities should be stirred in. Oats sprinkled on a floor are probably the best grain food for nursing pigs. They do not swallow the hulls.

The young barrows may go with the sow to the pasture when three weeks old, but only on warm, bright days, and after the dew has lifted. With her they return to the pens for food three times a day until she weans them or until they are weaned, as when two litters are reared per year. After they are weaned the pasturing continues in one form or another until the fattening period begins. Additional food must be given twice or three times a day and always of a character to produce good growth. It may consist of soaked meal as shorts only or of shorts, 2 parts, and pea, corn or wheat meal one part. If skim milk is available more corn or wheat may be given. The corn portion of the diet may be fed whole and on a hard floor after it has been soaked for about twenty-four hours.

The pasture may consist of rye, blue grass, any kind of clover, barley, peas, millet or rape, as each may be in season. Where the pigs must be confined to yards, the green food can be given in the soiling form. It should always be succulent and fresh, and fed in liberal quantities. It may comprise such foods as rye, blue grass, clover, alfalfa, barley, peas or vetches, and oats, millet, sorghum and corn.

The barrows should glean among the peas from the time the latter approach the cooking stage, but they should be gradually accustomed to the peas. When gleaning thus they require but little other food until the peas begin to fail, after which sweet corn should be cut and fed to them liberally until the fattening period.

In the ample grain fields of the west, barrows may glean amid the stubbles after harvest with much advantage and with little or no additional food until they are at least partially fattened.

Under ordinary fattening the barrows should only be allowed the liberty of a yard attached to the pens, and in case of need access to a feeding floor. The following rations are very suitable: Properly soaked shorts, or ground oats, 1 part, and finely ground peas, barley, wheat or corn, 2 parts, with, say, one-half pound per day of oil meal and some field roots. As introductory to autumn feeding, barrows may be fed green corn, from the cooking stage onward, and later snapped corn, with squashes or field roots and swill made from shorts, added.

Litters for winter finishing should not come later than September 1; should have ample exercise before the fattening period; should be given warm and well ventilated quarters in cold weather, and should have field roots in lieu of pasture when the latter fails.

Before the fattening period the aim should be to secure free and ample and continuous muscular development. When barrows are thus grown they should gain not less than one and one-half pounds per day while being fattened, and prior to that period they should gain from three-fourths of a pound to one pound per day. They should be marketed immediately when they cease to make rapid gains, and when six to eight months old.

No foods are more suitable for producing an excellent quality of product than skim milk, shorts, clover and peas. But with the factors named, an excellent quality of pork may also be secured by substituting corn for peas, more especially during the latter stages of development. To obtain the greatest profit from the skim milk it should be fed along with one-third of its weight in meal. And no cheaper system can be devised for growing pork, more especially when free use is made of pasture.

When thus grown the proportion of the lean will be large, and it will be nicely intermixed with the fat. Much freedom of exercise during the growing period will still further add to the proportion of the lean.

CURING AND UTILIZING THE BERKSHIRE CARCASS.

Curing meat upon the farm for home use or for sale can best be done in cold weather, that is to say, in the late autumn or the early winter, and for the following reasons: First, there is less difficulty in getting the flesh in that firm condition which is necessary to successful curing. Second, the parts of the carcass not usually cured can be consumed while yet fresh. Third, spring litters are then sufficiently matured for slaughtering. Fourth, as cured pork is intended chiefly for consumption in seasons other than winter, there is opportunity to cure it before the warm weather arrives; and fifth, the farmer has more leisure at such a time for giving the necessary attention to the work of curing.

As the season for slaughtering approaches, food should be withheld from the hogs for twenty-four hours before they are killed as then the fat can be separated from the inwards with less difficulty, and this work should receive attention while the inwards are yet warm, as it can then be done with much more ease and dispatch than when they are cooled. The pens also should be kept well littered so that the limbs will not be wet and slippery and in consequence difficult to handle.

Every care should be taken not to excite the animals before they are slaughtered or the blood will not so completely leave the flesh, hence it can not be cured so as to make the highest quality of meat. When the animal to be slain is caught and thrown it is turned upon its back. One person gets astride the body, leans his weight upon the same and with one foreleg in each hand he presses them down close to the fore-flanks. In that position the hog is practically helpless. A second person armed with a fairly long and broad-bladed knife with a keen edge, standing close to the left of the head of the

doomed animal presses the head of the same to the ground by placing the left hand on the lower jaw and pressing downward. With the right hand he makes a clean incision by drawing the knife but once toward him, just in front of the breast bone. The knife is then plunged to the hilt in the direction of the tail and is quickly turned while yet in the wound to left and right to sever the veins of the neck. Care must be taken not to point the knife to one side or the other of the carcass, or a shoulder stick will result, which means considerable loss of valuable meat. The animal is then allowed to regain its feet that the blood may more readily leave the carcass.

The water in which the carcass is to be immersed so as to loosen the hair will be about the right temperature if taken from the heater to the scalding barrel when it has begun to boil briskly. Some wood ashes will aid materially in loosening the hair and any scurf that may adhere to the body. And some experience is necessary to tell just how long to immerse the body in the water and how long to expose it between the alterations of immersion, but the period is brief. A "good scald" is important, as it greatly facilitates the work of removing the hair, and also gives the carcass a clear and attractive appearance. The hair should be removed with all possible dispatch, as it never comes away so easily as just after the immersion of the carcass: and the hair on the head and legs should first receive attention, as it adheres more firmly to those parts.

When the hair is removed the carcass is hung up by one or the other of the various methods that have been adopted. The notched pole or rail, with one end on the ground and the other resting against the side of a building, though very primitive, will answer well enough where but few animals are being slaughtered. When suspended the carcass is washed or dressed with hot water, and stroked downward with a knife blade to make it quite clean. It is next drenched with cold water. The stomach and inwards are then removed. The operator standing in front of the animal cuts open the carcass from the rectum to the breast bone. This can usually be done with a knife. Then he goes behind the animal and cuts loose the muscles which attach the rectum to the body. He then goes in front again, grasps the rectum with the left hand, pulls gently downward and follows with the knife, so as to cut loose all parts adhering to the body, being careful at the same time not to remove any of the kidney fat. The stomach and intestines lower gradually by the weight of suspension into a vessel for receiving them. The operator cuts loose the intestines from the liver, pulls the œsophagus upward some distance and cuts it off. He then severs the breast bone by using a knife, cleaver, axe or saw, according as the age of the animal calls for the one or the other of these implements. And the neck is also cut open in front to the place where the animal was struck. The diaphragm is then cut loose all around and close to the body. The œsophagus and windpipe are severed close to the root of the tongue, and with the heart, lungs, liver and diaphragm, are removed from the chest cavity. The mouth is then pried open and a small piece of wood placed in it to hold the jaws apart. A small stick of

suitable length with blunt points is made to stretch the sides of the body apart by placing one end in each hind flank, and lastly, the inside of the body is drenched with cold water.

The carcass should not be cut up until it stiffens and the flesh has become firm, as short of that condition the cutting can not be so neatly done. And if the meat is salted before it is firm or after it has once been frozen, it will not so readily take the salt, and therefore will not cure so perfectly. In cutting up the carcass it is laid upon a broad meat block, or on a low and strong table made of planks. The head is then severed just in front of the shoulder. The carcass is split open with axe and knife down the center of the backbone. The internal fat is removed from the kidneys, and in some instances the lean meat, known as tenderloins. The ribs and backbone are then taken out with but little flesh adhering to them. The legs are severed about two inches above the knee and hock joint respectively. The shoulders and hams are next severed from the sides and "trimmed," that is to say, any loose adhering parts are removed. The angular parts are made shapely and the superfluous adherent fat cut off. The sides are then cut into three longitudinal strips, the lower and intermediate cuts to be cured as bacon, the upper one fresh or salted is not usually kept long, as it has more fat relatively than the other side meat. The head is cleaved into longitudinal pieces, and the brain removed. The lean meat under the kidneys, the trimmings of the hams and shoulders, and sometimes the neck pieces are made into sausage meat. The head is usually made into head cheese, and sometimes also the neck pieces. This method of dressing and cutting up the carcass is, in its leading essentials, the same as that taught by the farm foreman, Mr. Andrew Boss, to the students of the Minnesota Farm School, at St. Anthony Park.

The shoulders, hams and the two lower cuts of the side meat are more commonly cured for summer use. Various methods of curing are adopted, but essentially they may be reduced to two, known respectively as salting dry or by the use of pickle. One mode of curing by each system will be submitted.

When pickle is used the work may be done as follows: Make a brine by adding 9 pounds of common salt, 3 pounds common brown sugar, 1 quart molasses, 3 ounces saltpetre and 1 ounce of pearlash to every 6 gallons of water. Mix by stirring, boil and skim, pack the meat in a strong, clean barrel which has not heretofore contained any acid substances. Keep the barrel in a cool place away from the influences of frost. In packing the meat the bottom of the barrel is first covered with a layer of salt. Place on this a layer of the pieces. Add another layer of salt. Proceed thus until the barrel is nearly, but not quite full. Then pour on the brine until it completely covers the meat. Cover with a head to fit inside the barrel. Lay a board across this head and weight sufficiently to keep the pork beneath the brine. The meat will have taken the salt sufficiently in from six to eight weeks, but it may be left there for a longer period

If left long in the brine the latter should be drawn off after a time; that is to say after several weeks, and boiled, and the impurities skimmed off while it is being boiled. It should then be poured back on the meat. When the pieces are removed from the brine they are hung up and smoked to suit the taste. The smoking usually occupies but a few days; that is to say, about a week. The pieces may remain in the smoke house, or in any dark and airy place until wanted: Dark surroundings help to shield the meat from flies.

Pork is now being more frequently cured at home by the dry salting process, and it is equally applicable to shoulders, hams and side meat. The following method of curing it thus was given by the writer several years ago, when preparing "The First Principles of Agriculture" for introduction into the common schools of Ontario: When the carcass has been cut into pieces in the accustomed way, sprinkle salt on a clean floor in the cellar, or a temporary table of boards, somewhat higher at one end than the other. When the pieces are placed on a table the brine from the salt will readily escape, and may be caught in a suitably placed receptacle. To each of the pieces apply powdered saltpetre at the rate of 2 to 3 ounces to every 100 pounds of pork, and follow this with a thick layer of salt well rubbed in, particularly on the rind side of the pieces. Then lay down a second layer of pieces, and apply saltpetre and salt as before. Proceed in this way until all the pieces are taken. In about 10 days repeat the salt process, but without using the saltpetre. Allow the pork to remain in the salt from four to six weeks, according to the thickness of the meat. When this stage is completed, brush or wipe off the salt and hang the pieces in the kitchen near enough to the stove to quickly produce a dry skin. When this has formed remove the pieces further from the stove and allow them to hang until they are thoroughly dry. Then hang them for storage in a cool, dry place from which all flies are kept away. This method of curing meat has proved eminently satisfactory. It is less laborious than curing by the use of pickle, and it is applicable to all portions of the carcass which is customary to cure for consumption at a subsequent period.

Pork thus cured will find ready sale, and will bring good prices in almost any local market. Any surplus, therefore, that the grower may have can thus be disposed of. It is therefore easily possible for the farmer to have an abundant supply of pork of the best quality the year round. And for home use the flesh of a properly fed Berkshire is just what is wanted, owing to the admirable blending of the fat and the lean, and to the high quality generally of the meat.

An invitation was received from the Illinois Live Stock Breeders' Association requesting the Illinois Swine Breeders' Association, after the election of officers for the ensuing year, to meet in joint session and to have the papers prepared for the swine breeders' meeting read before all the live stock breeders' associations.

On motion, the invitation was accepted.

5. The association proceeded to the election of officers for the ensuing year, with the following result, viz.:

President, Fred H. Rankin, Athens; vice president, A. J. Lovejoy, Roscoe; secretary, Charles F. Mills, Springfield; treasurer, J. R. Fulkerson, Jerseyville. Executive committee, Charles E. Vigal, New City; H. O. Minnis, Sharpsburg; Frank Whitney, Athens; W. A. Pierson, Vermilion; W. E. Spicer, Bushnell.

On motion, the executive committee were authorized to fix the time and place for the next annual meeting.

On motion, adjourned to meet with the various live stock associations.

CHARLES F. MILLS, *Secretary*.

FRED H. RANKIN, *President*.

APPENDIX.

ANNUAL REPORTS COUNTY FARMERS' INSTITUTES.

The programmes of the meetings of County Farmers' Institutes held in Illinois during the past season contain information of great value to the institute workers of the State.

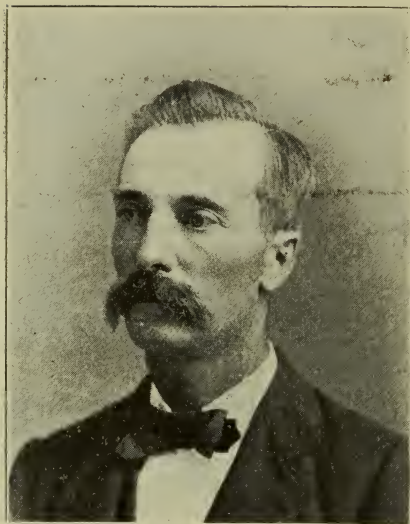
The reports of county institutes furnish an interesting study of the topics receiving attention of the leading farmers in all portions the State, and contain the names of speakers best qualified in their respective localities to discuss said subjects.

The arrangement of the programmes, the numerous subjects presented for discussion at the county institute meetings and presented in the following reports will suggest many improvements that can be made in the announcements for future meetings to be held in a number of counties in the State.

The history of the various county institutes is briefly outlined in said reports, which contain not only the time and place of previous meetings but the names of the gentlemen in charge of the late and succeeding institute.

The brief time for collecting photographs and having electros made for use in connection with said county reports has deprived the county institute workers of the State of the great pleasure of looking into the faces of many excellent promoters of the institute work in counties that have received great benefit from the holding of such meetings for a term of years.

BOONE COUNTY FARMERS' INSTITUTE.



WM. L. SHATTUCK, President.

Afternoon session, 1:30 p. m.

Dairy and Creamery Management, H. B. Gurler, DeKalb, Ill. Discussion. Testing of Milk, R. P. Sharples, Elgin, Ill. Discussion. Recitation, Maggie Pickins, Caledonia. Music.

Second day, 10 o'clock a. m.

Music. Prayer, Rev. Dr. Geo. R. Pierce. Social Side of Farm Life, A. S. Collins, Springfield. Discussion. Silo, Ray Cunningham, Flora. Discussion. Music.

Afternoon session, 1:30 p. m.

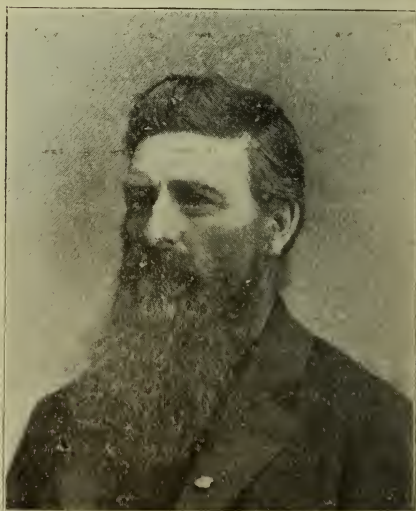
Music. Tiling, H. D. Haeger, Elgin, Ill. Discussion. Practical Thoughts, H. W. Avery, Belvidere. Discussion. Music. Election of officers.

The present organization was completed in 1895, and institutes have been held at Belvidere February 26-27, 1896, and February 2-3, 1897, under the management of the following officers: W. L. Shattuck, president; O. J. Lincoln, vice president; R. W. Morgan, treasurer, and C. E. Chena, secretary. The following is the programme of the last institute, held at Adelphi Hall, Belvidere, Tuesday and Wednesday, February 2-3, 1897:

PROGRAMME.

First day, 10 o'clock a. m.

Music. Prayer, Rev. Samuel Earngey. Address of Welcome, Mayor McInnis. Response, President Shattuck. The Influence of Flowers in the home, Mrs. Dr. I. J. Heckman, Belvidere.



C. E. CHENA, Secretary.

CHAMPAIGN COUNTY FARMERS' INSTITUTE.



C. DYER, President.

Thursday evening, 7 o'clock.

Song, Miss Effie Harris, accompanist Miss Lou Roberts. Agriculture of Brazil, Prof. Eugene Davenport, University of Illinois. Song, Mrs. Huff, accompanist Miss Grace Adams. Light in Plant Growth, (with stereoptican views), C. F. Hottes, University of Illinois. Music, Mrs. Katherine Craig and High School Mandolin Club—15 pieces.

Friday morning, 9 o'clock.

Inoculation for Protection against Swine Plague or So-called Hog Cholera, J. A. Hossack, Champaign. Diseases of the Horse, R. W. Braithwaite, V. S., Champaign. Farm Dairying, Ralph Allen, Delavan, Ill.

Friday afternoon, 1 o'clock sharp.

Plowing and Cultivation, Prof. P. G. Holden, University of Illinois. Recitation, Miss Kate Yexley. Poultry, Mrs. R. A. Judy, Decatur, Ill. A Perfect Food Ration for Man, Mrs. H. M. Dunlap, Savoy, Ill.

The attendance this year was the largest of any Institute yet held in this county and the display of grains, fruits and breadstuffs was magnificent.

The following are the officers for the ensuing year: J. M. Love, president; I. S. Raymond, vice president; J. A. Hossack, secretary and treasurer; M. A. Dewey, I. S. Peters, Robert Wright, executive committee.

The Champaign County Farmers' Institute was organized in Champaign, 1891, and an Institute was held at that place January 7-8, 1891; January 19-20, 1892, at Homer; February 4-6, 1893, at Rantoul; February 23-24, 1894, at Fisher; January 2-3, 1895, at Champaign; January 2-3, 1896, at St. Joseph; February 25-26, 1896, at Urbana, and January 21-22, 1897, at Champaign. The officers under whose management the last meeting was held were: President, C. Dyer, Mahomet; vice president, J. M. Love; secretary and treasurer, Z. R. Genung, Rantoul; J. A. Hossack, I. S. Peters, A. M. Fauley, O. W. Maddock, executive committee.

The programme of the Institute held at Champaign, January 21-22, 1897, is as follows:

PROGRAMME.

Thursday morning, 10 o'clock.

Horses, O. H. Swigert; Sheep: Care and management, Robert Wright, Mahomet. Question box.

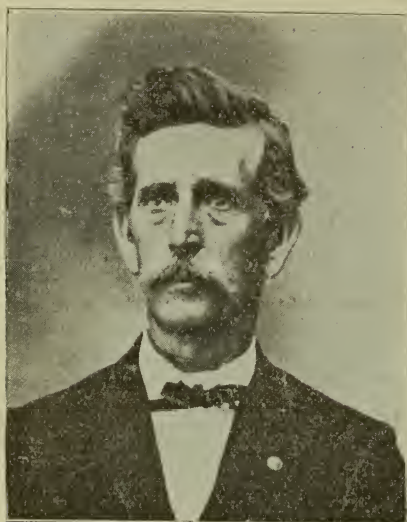
Thursday afternoon, 1 o'clock sharp.

Advantages of Diversified Farming, Prof. Eugene Davenport, University of Illinois. Song—"Farmer John," Dr. H. H. Oneal and Mrs. Huff. Beneficial and Injurious Insects, Prof. S. A. Forbes, State Entomologist. The Best Product of the Farm: The Farmer, Prof. Joseph Carter, Superintendent Public Schools, Champaign.



Z. R. GENUNG, Secretary.

CLARK COUNTY FARMERS' INSTITUTE.



H. P. LOWRY, President.

Saturday, 9 a. m.

"At What Age to Put Off Stock to Secure Best Results," Frank Murphy, Wabash.

"Does Berry Raising and Gardening Pay?" Chas. Lafferty, of Casey, followed by Jos. Jones, of Martinsville.

"Poultry Raising Best Results from Same." Discussed by institute, opened by Thos. Craig.

Discussion, "Best Fertilizer for Farm Land and When Apply," A. H. Norman, Martinsville, and Jos. Lutz, of Marshall.

Afternoon.

1:00—"Breeding Draft Horses," Chas. F. Mills, of Springfield, Ill.

Election of officers for 1897 and miscellaneous business.

"Preparing Ground and Best Results for Raising Wheat," Geo. Fredenberger, of Auburn.

"Clover Sowing and Saving," discussed by institute, opened by Andrew Maurer, of Wabash.

"Potato Raising—Best Quality to Plant," Austin Sweet, of Martinsville.

Institutes were held February 19-20, 1896, and January 15-16, 1897. The last institute was held at Marshall, Illinois, under the management of the following officers: President, H. P. Lowry; Secretary, J. A. Sweet; Treasurer, Edward Henbest.

The programme is as follows:

Friday, 10 a. m.

Called to order by president.

Reading minutes by secretary.

Welcome address by mayor.

"Chores the Farmer Can Do," Capt. Ed. Harlan, of Marshall.

Afternoon.

1:30—"Clover and Successful Farming," Prof. P. G. Holden, of Champaign University.

"Corn Culture," Thomas Craig, of Anderson township. Discussed by institute.

"Best Means of Recruiting Worn Out Orchards," Hon. G. N. Parker, of Robinson.



J. A. SWEET, Secretary.

CRAWFORD COUNTY FARMERS' INSTITUTE.



HENRY BURNER, President.

Thursday, 10 a. m.

Music. Prayer, by Rev. Wm. McCaughey. Stock Breeding, Dr. P. P. Connett; Discussion. Farm Fencing, G. T. Athey. Discussion. Farm Management, J. D. Trimble. Discussion. Question box.

Afternoon session, 1 p. m.

Floral Culture Mrs. T. J. Edwards and Mrs. J. D. Trimble. Discussion. Horticulture, Hon. Geo. N. Parker. Discussion. Poultry, Mrs. Peter Henry and Miss Adeline Newlin. Discussion. Berry Culture, John L. Watt and A. A. Coon. Discussion. Election of officers for ensuing year. Transaction of such business as may come before the Institute. Reading and adoption of minutes. Adjournment.

Five hundred copies of the above programme were printed and distributed among the farmers of the county. The exhibits consisted of corn, field peas, apples and paving brick.

One thousand copies of a sixty-page report of the proceedings and papers read were published and furnished to the farmers of the county by the proceeds of the advertisements of the business men of Robinson.

The next meeting will be held at Robiason, October 15 and 16, 1897.

The Crawford County Farmers' Institute was organized April 4, 1896. The first Institute was held at Robinson, December 30-31, 1896, under the following management: President, Henry Burner, Robinson; vice president, David Goodwin, Palestine; secretary, S. S. Reinæhl, New Hebron; treasurer, John D. Trimble, Trimble.

The programme of the meeting held December 30 and 31, 1896, is as follows:

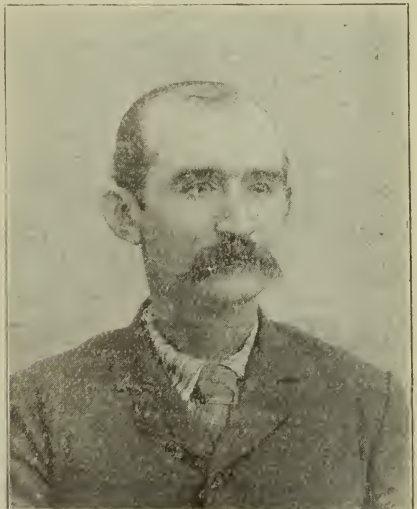
PROGRAMME.

Opening session, 10 a. m.

Music. Prayer, by Rev. C. A. Beckett. Welcome Address, Mayor Walters. Response, Joseph A. MacHatton. Address by the President of the Institute. Question box.

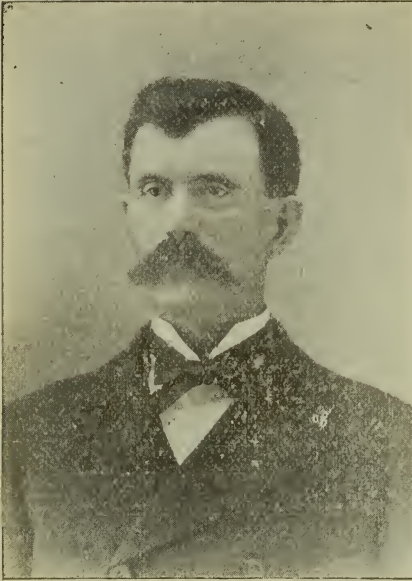
Afternoon session, 1 p. m.

Corn, its Culture and Uses, Hon. E. Callahan. Discussion. Farm Pests, Dr. S. D. Meserve. Discussion. Public Highways, J. A. Hill. Discussion. Question box.



S. S. REINÆHL, Secretary.

DEWITT COUNTY FARMERS' INSTITUTE.



W. S. HARROLD, President.

Second day—morning session—10 o'clock.
Wednesday, January 20, 1897.

Prayer, Rev. Thomas Kelly. Music, piano solo, Miss Mabel Jones. Vocal solo, George Johnson. Recitation, Miss Reliance Woods. "Rotation of Crops—Reasons for," George Hartsock, Leroy James and others. "Rotation of Crops—Value of," W. H. Oglevee, U. E. Hunt, H. Morris and others. Address, "Soils," Prof. B. F. Staymate. General discussion.

Afternoon session—1:30 o'clock.

Music, Sprague's orchestra. Music, vocal solo, Mrs. Joe Bosserman. Paper, "Hard Times and the Farmer," T. C. Grady. Music, harp and piano, Mr. Lane. Recitation, Miss Bernice Marshall, Waynesville. Paper, "What Kind of Amusements Should We Have in Our Country Homes?" Mrs. Amy Walters. "The Health of the Hog," W. S. Harrold. "General Management of the Hog," Samuel McNier, Weldon. "Does the Hog Keep the Farmer or the Farmer Keep the Hog?" E. L. Hoffman, Waynesville. "Diversity of Food," B. T. Hill. General discussion, J. E. Johnson, J. M. Shaw and others.

Evening session—7:30 o'clock.

Music, Sprague's orchestra. Recitation, Miss Annette Jeffrey. Vocal solo, Harry Johnson. Recitation, Mrs. Jas. Reed. Music, Geo. Johnson's quartette. Recitation, Master Warren Hughes. Oratorical contest, selected by programme committee. Address, Rev. Kumlér.

The officers for the ensuing year are as follows: President, Jacob Zeigler, Clinton; Vice-President, C. Y. Miller, Maroa; Secretary, Edwin Weld, Jr., Clinton; Treasurer, Samuel Newell, Clinton; Executive Committee, Chas. Walker, B. C. Sprague, H. C. Cline, Mrs. W. W. Newman, Mrs. D. W. Spidle, all of Clinton.

The DeWitt County Farmers' Institute was organized in 1890, and Institutes have been held at Clinton as follows: December, 1891; January, 1892; January 31 and February 1 and 2, 1893; January 16-18, 1894; February 5-7, 1895; January 21-23, 1896, and January 19-21, 1897. The last Institute, held at the court house in Clinton, January 19-21, 1897, was under the management of the following officers: President, W. S. Harrold, Wapella; Vice-President, Mrs. W. W. Newman, Clinton; Secretary, C. M. Hartsock, Clinton; Treasurer, C. Y. Miller, Maroa; Executive Committee, Edwin Weld, Jr., Emerson Hartsock, Samuel Newell, Mrs. M. R. Colwell, Mrs. Chris. Morris. The programme of this meeting is as follows:

First day—morning session—10 o'clock.

Tuesday, January 19, 1897.

Prayer, Rev. L. B. Pickerill. Address of welcome, Hon. Michael Donahue. Response, President W. S. Harrold. Report of Committee on Programme. Report of Committee on Finance.

Afternoon session—1:30 o'clock.

Music, instrumental, Mrs. Geo. Johnson. Vocal solo, Miss Laone Strahorn. Select reading, Mrs. Jas. Reed. Paper "Education," Miss Genevra Tackwell. Paper, "The Influence of Flowers in the Home," Miss May Hartsock. "Our Poultry Interests," Mrs. S. N. King, Bloomington. General discussion, Mrs. J. T. Sprague, Mrs. J. H. North, DeWitt, and others.

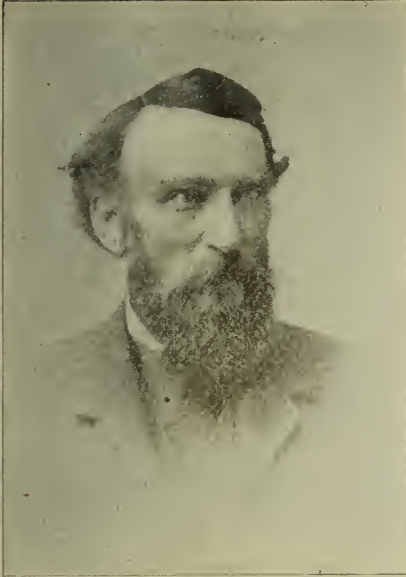
Evening session—7:30 o'clock.

Music, instrumental, Miss Maude Bishop. Vocal solo, Miss Bessie Miller. Recitation, Gertie Colwell. Music, orchestra. Reading of prize essays. Music, orchestra. Address, Prof. C. C. Covey, Farmer City.



C. M. HARTSOCK, Secretary.

DU PAGE COUNTY FARMERS' INSTITUTE.



H. C. MIDDAGH, President.

Wednesday, February 10th--Morning Session, 10 o'clock: Prayer, Rev. Chandler; Song, Wheaton High School Chorus; Address, Dr. Chas. W. Oleson. Crusts, Mrs. N. E. Matter: Tile Drainage for Profit, H. C. Middaugh: Aid to Injured or Sick before a Physician can be Summoned, Dr. W. H. Peck: Discussions.

Afternoon Session, 1 o'clock: Song, Miss Bartlett; Diseases of the Horse's Hoof, Dr. W. C. Galbraith: Paper, Mrs. A. D. Albro; Milk and Meat Inspection, Dr. M. B. Trumbower; Farm and Road Drainage, Jno. McNabb: Recitation, Mrs. Edith Bartlett; Rye as a Crop for Profit, A. T. Jones: Question Box conducted by Prof. Jona Piper.

Thursday, February 11th--Morning Session, 10 o'clock: Teachers' Institute Day; Prayer, H. A. Fischer: Wheaton High School Chorus: Election of Officers; Poultry for Profit, B. F. Wyman: What Costs, M. Slusser; Cost of Growing Corn, B. W. Snow; Some Notes on the History and Management of Noxious Weeds, Capt. Sufford: Discussions.

Afternoon Session, 1 o'clock: Address, Why We Educate, J. H. Freeman, Asst. State Supt of Schools: Recitation, Mrs. Edith Bartlett; The Veterinary Profession, E. S. Fry, M. D. C.; Dairy, H. B. Gurler; Rural Schools, Prof. Jona Piper; Music, Miss Bartlett; Milk Tests, E. J. Deitz; Paper, Adolph Gehrman.

The officers for the ensuing year are as follows: President, C. D. Bartlett; Vice Presidents, H. G. Savage, C. Steck; Secretary, R. T. Morgan; Treasurer, P. W. Stacy; Executive Committee, W. F. Franzen, W. K. Patrick, A. D. Albro, E. D. Mack, John Christie, Wm. Hammerschmidt, H. C. Middaugh, Irwin Goodrich, M. W. Crampton.

The DuPage County Farmers' Institute was organized January 14, 1896, with twenty charter members. Two institutes have been held at Wheaton, the first February 19-20, 1896, the second February 9-11, 1897. The officers under whose management the last institute was held, are as follows: President, H. C. Middaugh; Vice Presidents, Mrs. W. B. Lloyd, A. D. Albro; Secretary, R. T. Morgan; Treasurer, John Christie; Executive Committee, Wm. Hammerschmidt, C. B. Blodgett, C. D. Bartlett, Thomas Betts, Geo. A. Fischer.

This meeting was also the meeting of the Eighth Congressional District Farmers' Institute. The programme is as follows:

PROGRAM.

Eighth Congressional District Farmers' Institute, to be held at the Court Room, Wheaton, Illinois, February 9, 10 and 11, 1897.

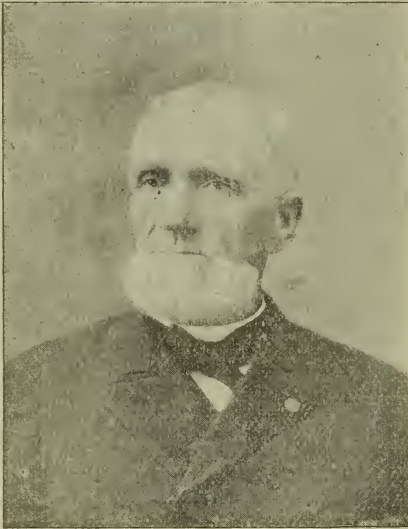
Tuesday February 9th--Morning Session, 10 o'clock: Prayer, Dr. Tompkins; Song, Miss Bartlett; Address of Welcome, Mayor Peironnet; Good Roads, H. G. Savage; Recitation, Miss Edith Bartlett; Discussions.

Afternoon session, 1 o'clock: Music, Miss Bartlett; Hard Roads and Wide Wagon Tires, P. W. Stacy; The Future of Horse Breeding, M. W. Dunham; Keeping Cool, Lillian E. Ballou; Recitation, Miss Edith Bartlett; Feed--Value of for Milk or Beef, C. D. Bartlett; Question Box, conducted by Prof. Jona Piper.



R. T. MORGAN, Secretary.

EDGAR COUNTY FARMERS' INSTITUTE.



WM. McADAMS, President.

basis of all Great Agriculture, Mrs. Virginia C. Meredith, Cambridge, City.

Evening session, 7:30 o'clock.

Music, G. A. R. Quartette; Education as an Investment, Prof. J. D. Shoop, Paris; music, quartette; Country Schools and Scholars, Mrs. Virginia C. Meredith; music; adjournment.

Thursday, February 25, 1897.

Morning session, 10 o'clock.

Music; Breeding Swine, James Riley, Indiana; interesting discussion followed; The Rearing and Feeding Beef Cattle, John O. Honnold, Warrenton; discussion, Mrs. Meredith; The Horse Industry, Mr. Wilson, Paris; discussion, Mr. Houston, Paris.

Afternoon session, 1:30 o'clock.

Music; discussion on Beef Cattle, J. D. Hunter, Paris; Road Question, Wm. McAdams, Kansas; discussion, J. Milton Wilson, W. A. Coleman, Wm. Slemens; James Riley, of Indiana, made a few interesting remarks on the success of our institutes; The Farmers Daughter, Mrs. Virginia C. Meredith, Cambridge City, Ind.; address, Hon. Hussman; President McAdams delivered the closing address.

The next meeting will be under the management of the officers-elect, viz: President, J. M. Hollingsworth, Ridge Farm; Vice-President, Charles Clark, Edgar; Secretary, John O. Honnold, Warrenton; Treasurer, W. A. Coleman, Paris; Corresponding Secretary, Geo. H. Gordon, Paris; Executive Committee: Wm. McAdams, Kansas; J. M. Hollingsworth, Ridge Farm; W. A. Coleman, Paris; John O. Honnold, Warrenton; Geo. H. Gordon, Paris.

The Edgar County Farmers' Institute was organized in 1896. Institutes have been held in the Court House at Paris as follows: March 3 and 4, 1896; February 24 and 25, 1897. At the last institute the following officers were in charge of the meeting: President, Wm. McAdams, Kansas; Secretary and Treasurer, John O. Honnold, Warrenton; Corresponding Secretary, Geo. H. Gordon, Paris; Executive Committee, S. J. Headly, Paris; W. H. Morris, Kansas; W. A. Coleman, Paris; John O. Honnold, Warrenton; Geo. H. Gordon, Paris. The programme of the institute meeting held February 24 and 25, 1897, is as follows:

Wednesday, February 24, 1897.

Morning session, 10 o'clock.

Music; prayer, Rev. Brooks, Paris; welcome address, Col. H. Van Sellars; response, President Wm. McAdams; song by quartette. The minutes of previous meeting read by Secretary John O. Honnold, and adopted. Practical Corn Culture, James Riley, Thorntown, Ind.; Horticulture, B. O. Curtis, Paris.

Afternoon session, 1:30 o'clock.

Music; The Farmer of the Future, J. M. Hollingsworth, Ridge Farm; song by Glee Club; discussion on above subject by W. A. Coleman, Paris and C. W. Clark, Edgar; song, quartette; Experience with Seeding Grasses and Clover and Controlling Chinch-Bugs, C. A. Schamel, Editor O. J. Farmer, Chicago, Ill.; discussion, led by J. M. Hollingsworth; song, quartette; Live Stock the



JOHN O. HONNOLD, Secretary.

EDWARDS COUNTY FARMERS' INSTITUTE.



ANSEL GOULD, President.

Daughter, Miss Mary Howard; discussion; recitation, Rosa Wiggle; Home Life on the Farm, general discussion; recitation, J. T. Shurtleff.

Friday, morning session, 9:30.

Music; prayer, Rev. McIntosh; Agricultural Education, Prof. Eugene Davenport, Champaign; discussion, Prof. Hines, Albion; Public Roads, Hon. John Landrigan; discussion, Hon. Robert Mitchell, Princeton, Ind.

Afternoon session, 1 o'clock.

Music; Farm Draining, Jacob Zimmerman, Mt. Carmel; discussion, J. W. Barber; Progressive Farming, R. C. Morris, Olney; discussion, F. A. West; Farm Poultry, Mrs. Thomas Bassett; discussion, Walter Rigg.

The next meeting of the Edwards County Institute will be held at Albion, Wednesday and Thursday, December 1-2, 1897, under the auspices of the officers-elect, viz.: President, Ansel Gould, Bone Gap; vice president, John Gates, West Salem; secretary, M. E. Shurtleff, Bone Gap; treasurer, Joseph Skeavington, Albion; executive committee, Charles Clark, Albion; Wm. Thread, Bone Gap; Joseph White, Albion.

The Edwards County Farmers' Institute was organized in December, 1895. Two institutes have been held, the first January 30-31, 1896; the second February 11-12, 1897, at Albion.

The last institute was under the following management: President, Ansel Gould, Bone Gap; vice president, Charles Clark, Albion; secretary, M. E. Shurtleff, Bone Gap; treasurer, Joseph White, Albion; executive committee, A. P. Henderson, Albert Fewks, J. W. Barber.

The program of the institute held at Albion February 11-12, 1897, is as follows:

Thursday, morning session, 9:30.

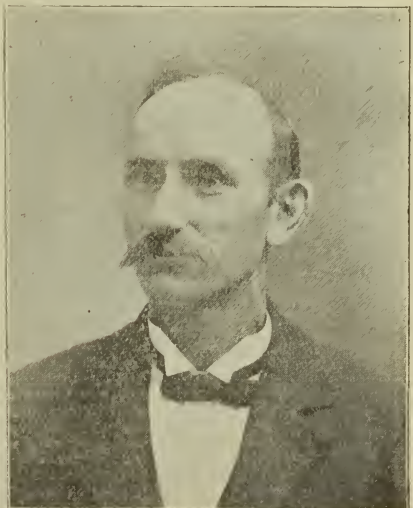
Music; prayer, Rev. Shoemaker; appointment of committees; address of welcome, Mayor Frank Woodham; response, Hon. Jacob Zimmerman, Mt. Carmel; report of committee on organization.

Afternoon session, 1 o'clock.

Music; Object of Farm Institutes, L. N. Beal, Mt. Vernon; discussion, J. E. Seiler, Mt. Carmel; Future of Wheat Growing, Robert Mitchell, Princeton, Ind.; discussion, J. B. Elliott, New Harmony.

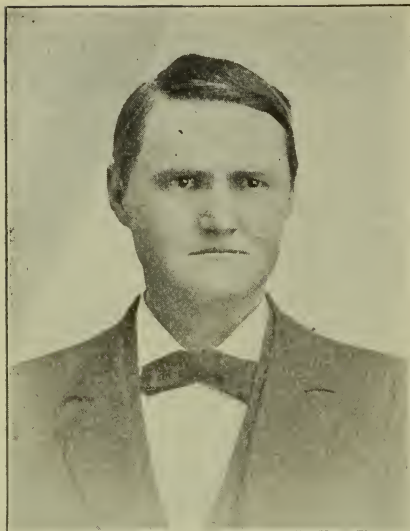
Night session, 7 o'clock.

Music; prayer, Rev. C. W. Yates; music, recitation, George Gould; The Farmer's



M. E. SHURTLEFF, Secretary.

GREENE COUNTY FARMERS' INSTITUTE.



C. W. HOLNBAC, President.

Afternoon session.

Prayer. Rev. W. H. Cooper; Vocal Solo, Dr. E. K. Shirley; Welcome Address, Mayor F. M. Baldwin; Response, C. W. Holnback, President Greene County Fair; Instrumental Music, G. E. Baldwin, F. D. Vanderheyden; The Greene County Fair, G. W. Witt, J. K. P. Farrelly; Recitation, The Old Man Goes to Town, Brace Dawson; Piano Solo, Newton Boggess; Poultry, D. T. Heimleisch, Jacksonville, Ill.; Discussion; Instrumental Music, Baldwin and Vanderheyden; Adjournment.

Evening session.

Vocal Music, White Hall Glee Club; Recitation, Miss Stella Johnson; Agriculture the Basis of National Greatness, M. B. Ross; Vocal Music, Duncan Sisters; New England Farm Life and Farming, Hon. A. P. Grout, Winchester; Vocal Solo, Nellie McFarland; Adjournment.

Wednesday, January 20.

Morning session.

Instrumental Music, Vanderheyden and Baldwin; The Hog, A. P. Grout; Discussion; Vocal Solo, W. G. Pritchard; How to Make the Farm Pay, F. D. Moulton; Discussion; Instrumental Music, Baldwin and Vanderheyden; Adjournment.

Afternoon session.

Instrumental Music, Grant Family Orchestra; Prayer, Rev. T. B. Smith; Recitation, H. O. Tunison; Then and Now, or Fifty Years of Farm Life, Maj. E. A. Giller; Discussion; Vocal Music, Female Quartette; Planting and Care of Fruit Trees, Henley Wilkinson; Discussion; Recitation, Miss Nellie Morgan; Report of Committee on Resolutions; Instrumental Music, Baldwin and Vanderheyden; Adjournment.

Evening session.

Vocal Music, White Hall Glee Club; Recitation, Miss Jessie Higbee; Vocal Music, Duncan Sisters; Hints to Farmers, Hon. Henry Miner, Winchester; Vocal Solo, Mrs. E. E. Anderson; Needed Legislation for the Farmer, Hon. Thos. Henshaw; Vocal Music, White Hall Glee Club; Adjournment.

The first county institute in Greene county was held in Carrollton in 1889, under the Greene County Agricultural and Mechanical Board, and was conceived and originated with the Hon. W. J. Andrews, of Carrollton; Col. W. H. Fulkerson, of Jerseyville, and Hon. Benj. Roodhouse, of Carrollton. In 1890 the institute was held at Roodhouse 1891, at Greenfield; 1892, at Carrollton; 1893, at White Hall; 1894, at Roodhouse; 1895, at Greenfield; 1896, at Carrollton and January 19-20, 1897 at White Hall, Ill. All of these meetings have been very interesting and instructive, and were well attended.

The officers under whose direction the last meeting was held are as follows: President, C. W. Holnback, Rockbridge; vice president, John H. Stubblefield, White Hall; treasurer, B. C. Hodges, Carrollton; secretary, S. E. Simpson, Carrollton; executive committee, J. H. Stubblefield, M. B. Ross, W. C. Baker.

The programme of the 1897 institute, held in the opera house, White Hall, January 19-20, is as follows:

PROGRAMME.

Tuesday, January 19.

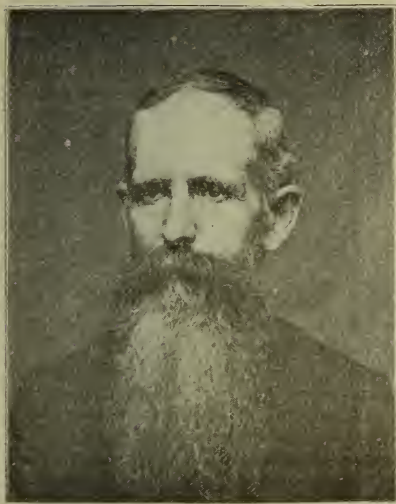
Morning session.

Organization; Appointment of Committees; Miscellaneous Business.



S. E. SIMPSON, Secretary.

THE HAMILTON COUNTY FARMERS' INSTITUTE.



A. J. YATES, President.

The Hamilton County Farmers' Institute was organized September 7, 1895. Institutes have been held at McLeansboro as follows: September 7, 1895, December 14, 1895, and February 20, 1896. The last Institute was held at McLeansboro, March 5 and 6, 1897, under the following management: Pres. A. J. Yates, Vice-Pres. J. M. Weldon, Sec'y John Judd, and Treas. Albert Neal, all of McLeansboro; Executive Committee—John C. Hall, H. A. W. Kipp, S. T. Wharton, M. A. Hooker and Albert Neal, all of McLeansboro.

Programme of meetings held March 5 and 6, 1897:

Friday, March 5, 1897.

Morning session—10 o'clock.

Music. Prayer. Address of welcome, Mayor Lemuel Powell. Response, Pres. A. J. Yates. Reading of minutes by Sec'y John Judd. Report of Treas. Albert Neal. Reports of committees.

Afternoon session—1 o'clock.

Music. Prayer. Paper, "Farmers' Institutes," L. N. Beal, Mt. Vernon. Discussion, J. C. Hall, I. W. Williams and J. P. Stelle. Paper, "Wholesome Water for the Home and Farm," Dr. J. J. Hassett, McLeansboro. Discussion, John Washburn and G. W.

Gollihur. Paper, "Fruits for the Farm." M. A. Hooker, McLeansboro. Discussion, John Judd, L. N. Beal, G. W. Gollihur, B. F. Brockett, John C. Hall and John H. Miller. Song, "The Cows Are In the Clover," Miss Effie Yates. Paper, "Poultry for the Farm," Mrs. J. P. Stelle, Mt. Vernon. Discussion, G. W. Up-ton, John Washburn, B. F. Brockett, J. C. Hall, J. P. Stelle and C. Kornmeyer. Music.

Evening session—7 o'clock.

Music. Paper, "How to Improve Our Country Schools," County Supt. D. J. Underwood, McLeansboro. Discussion, J. C. Hall, Mrs. M. C. Dale, Dan'l Berry and J. P. Stelle. Paper, "Common Things, Farm Life," Mrs. L. N. Beal, Mt. Vernon. Paper, "Home and Mother," Miss Effie Yates, McLeansboro. Song, "The Cow Bells," Miss Veneta Hall. Paper, "The Farmer's Home," Mrs. Nannie Hungate, McLeansboro. Recitation, "Knee Deep in June," Prof. John Gilbert. Music.

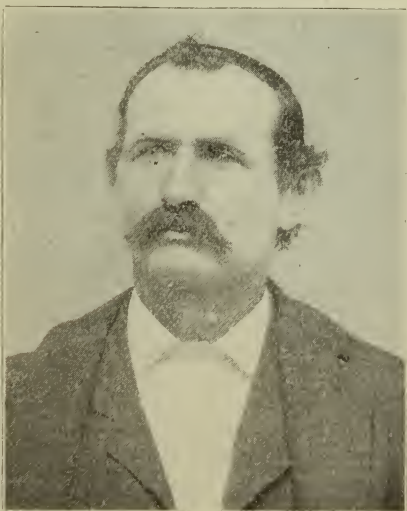
Saturday, March 6, 1897.

Morning session—9 o'clock.

Music. Prayer by Elder I. W. Williams. Paper, "Droughts, Causes and Preventions," J. P. Stelle. Paper, "Level Cultivation," Ezekiel Hunsinger, Burnt Prairie. Paper, "Innocency and Pleasures of Rural Life and of Agriculture," L. J. Hale, McLeansboro. Paper, "General Farming," L. N. Beal. Paper, "Clover, the Poor Man's Fertilizer," Dr. Daniel Berry, Carmi.

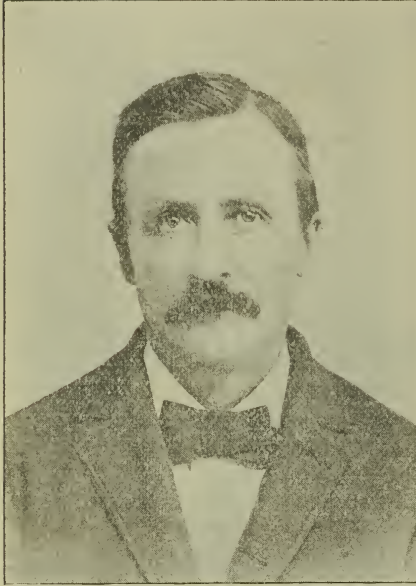
Afternoon session—1 o'clock.

Music. Address, "The Present and Future of Agriculture," Ex-Gov. Norman J. Colman, St. Louis. Paper, "How to Make the Farm Pay," J. P. Stelle. Adjournment.



JOHN JUDD, Secretary.

HENDERSON COUNTY FARMERS' INSTITUTE.



J. M. FORT, President.

Afternoon—1 p. m.

Recitation; music; "Wounds and How to Treat Them," by Dr. McIntosh, followed by question box on all diseases of farm animals; "How to Make Rural Life More Attractive," by John Stine; discussion; "Hygiene on the Farm," by Dr. I. F. Harter; discussion and questions; appointing committees; music.

Evening—7:30 p. m.

Violin solo, Mary Barnes; "The Farmers' Congress," by J. B. King; music; "Benefit of an Education to the Farmer," by Prof. Bowersmith; music; recitation; music.

Second day—10 a. m.

Prayer, Rev. A. N. Porter; solo; "Methods of Watering Stock," by T. N. Baird; discussion; "Swine Breeding and Management," by Oliver Whiteman; discussion; "The Farmer's Home, etc.," by Mrs. N. Q. Welch; discussion.

Afternoon—1 p. m.

Music; report of nominating committee; "The Dairy," by N. Stevenson; discussion and questions; "Potato Raising," by Anna Watson; questions and discussion; "The Emoluments of the Farmer as Related to Other Occupations," by Hon. George W. Dean; discussion; "Roads and Road Improvement," by L. P. Maynard; discussion.

The present institute was organized in January, 1896. The first institute meeting was held at Stronghurst February 18-19, 1896. The last meeting was held at the same place January 22-23, 1897, and had for its officers the following named gentlemen: President, J. M. Fort; Vice President, Edgar D. Rankin; Treasurer, Harry W. Stewart; Secretary, J. W. Rankin; Advisory Board, Jacques Voorhees, John Stine, L. P. Maynard, W. A. M. Crouch, W. T. Weir.

The programme of this meeting is as follows:

First day—10 a. m.

Prayer, Rev. J. M. McArthur; question, "Shall we have an agricultural fair in Henderson county?"; question opened by T. N. Baird, followed by C. E. Fort, Henry Cowden, Charley McMillen, Harry Stewart, Dr. E. W. Salter and C. E. Peasley; discussion; "Weed Pests and the Best Methods of Eradication," by John Carothers, followed by Alexander Marshall, E. D. Rankin and J. B. Milliken.



J. WESLEY RANKIN, Secretary.

IROQUOIS COUNTY FARMERS' INSTITUTE.



DAVID BRUMBACK, President.

Wednesday evening, 7:30 o'clock.

Music, Quartette; Recitation, Miss Ida Holch; Whistling Solo, Mary Lyman; Perfect Food for Man, Mrs. H. M. Dunlap, Champaign; Cornet Solo, Roy Lawson; Conservation of Fertility, John A. Scott; Discussion by H. J. Calkins.

Thursday morning, 9 o'clock.

Prayer; Election of Officers; Report of Committee on Awards; Farmers' Mutual Insurance, C. W. Sprague; Butter, Wm Mc Dougall; Discussion by Miss Alice Walker and F. M. Chapman.

Thursday afternoon, 1:30 o'clock.

Music, Quartette; Whistling Solo, Mary Lyman; Address, Dr. A. S. Draper, University of Illinois; Cornet Solo, Roy Lawson; Poultry, Almon Brumback; Discussion by H. S. Dixon. Question Box.

Thursday evening, 7:30 o'clock.

Music, Quartette; Whistling Solo, Mary Lyman; Money and Prices, Jas. W. Wilson, of Farm, Field and Fireside, Chicago; Vocal Solo, Miss Barnes, Onarga; Recitation, Miss Anna Ashland; Cornet Solo, Roy Lawson.

The eleventh annual meeting of the Iroquois County Farmers' Institute was held in the opera house, Gilman, Wednesday and Thursday, February 10-11, 1897.

The meeting was under the management of the following officers: President, D. Brumback, Danforth; secretary, Monroe Garrison, Watseka; treasurer, J. A. Hasbrouck, Crescent City.

The program was as follows:

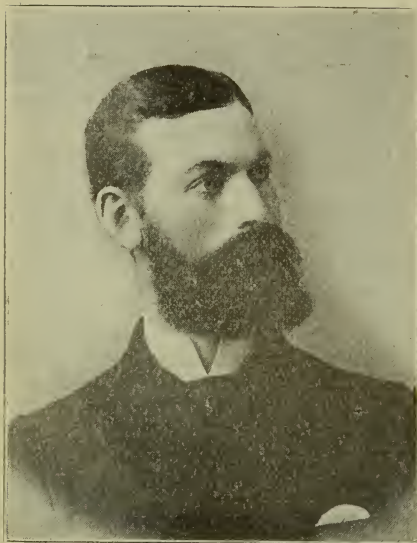
Wednesday afternoon, 1:30 o'clock.

Prayer; Music, High School Quartette; Address of Welcome, J. W. Kuttruff; Response, President; Cornet Solo, Roy Lawson; Small Fruit on the Farm, E. S. Fursman, El Paso; Whistling Solo, Mary Lyman; Subsoiling and Surface Cultivation, John Virgin, Fairbury; Question Box.



MONROE GARRISON, Secretary.

LEE COUNTY FARMERS' INSTITUTE.



A. G. JUDD, President.

Wednesday morning session, 10 o'clock.

Corn Culture and its Commercial Products, illustrated, E. S. Fursman; discussion; Hogs for Profit, Hon. A. J. Lovejoy, Roscoe, Ill., Member State Board of Agriculture; discussion; address, P. C. Holden, U. of I.; discussion.

Afternoon session, 1:15 o'clock.

Report of officers, R. E. Swigart, secretary, J. L. Lord, treasurer; annual election of officers; Dairying for the Young Farmer, Roy E. Swigart; discussion; The Profitable Dairy Cow, J. H. Coolridge, Galesburg; discussion; question box.

Evening session, 7:30 o'clock.

Music; Rural Free Mail Delivery, John M. Stahl, Chicago; recitation, college student; music; The Ideal Farmer, David Ward Wood, Chicago; recitation, Clyde Seavey; music.

Programs, posters and press notices were widely distributed throughout the county. The attendance was the largest of any institute yet held. Many fine samples of seed corn were on exhibition.

The officers for the ensuing year are as follows: President, Roy E. Swigart; vice president, A. Barlow; secretary, L. W. Mitchell; treasurer, A. A. Beede; executive committee, A. G. Judd, Henry Decker, Will Morris, all of Dixon.

Lee county Farmers' Institute was organized at Dixon, December, 1887. Institutes have been held every year since, either alone or in conjunction with the Dairymen's Association.

The last Institute was held at Dixon, February 16-17, 1897, under the following management: President, A. G. Judd, Dixon; vice president, Hon. L. W. Mitchell; secretary, Roy E. Swigart; treasurer, J. L. Lord; executive committee, J. L. Hartwell, D. A. Sheffield, Stewart Wilson, the president and secretary.

The programme was as follows:

Tuesday morning session, 10:30 o'clock.

Call to order by President, A. G. Judd; prayer, Rev. Bickenbach; Hard Roads and Cost of Constiuction, D. B. Raymond; discussion, George Gitt; discussion.

Afternoon session, 1:15 o'clock.

Address of welcome, Mayor C. H. Hughes; response by the president, A. G. Judd; Small Fruits on the Farm, illustrated, E. S. Fursman, El Paso, Ill.; discussion; Grafting, Budding, and Care of Farm Orchards, illustrated, J. L. Hartwell; discussion.

Evening session, 7:30 o'clock sharp.

Music; paper, Mrs. L. G. Chapman, Freedom, Ill.; recitation, Miss Lulu Swigart; music; address, P. C. Holden, Champaign; recitation, college student; music.



ROY E. SWIGART, Secretary.

McHENRY COUNTY FARMERS' INSTITUTE.



M. ZIMPLEMANN, President.

Thursday morning, January 28.

Prayer, Rev. S. C. Hay; Potato Raising, Thos. M. D. Richards; The Future of the American Horse, G. B. Richards.

Afternoon session, 1 o'clock.

Tile Drainage, B. F. Wyman; Poultry, E. H. Cook and G. A. Comack; Management of the Dairy discussed, by Samuel Clark and Lyman Sheldon; Swine Breeding, F. T. Barnes.

Election of delegates to attend the State Farmers' Institute.

Why Illinois Should Make an Exhibit at Paris as a State, J. P. Zimplemann; Remarks, by Judge Gillmore.

The officers elected for the ensuing year are as follows:

President, M. Zimplemann; Vice President, Geo. A. Hunt; Secretary, F. T. Barnes; Treasurer, E. H. Cook; Executive Committee, Samuel Clark, O. N. Webber, F. C. Wells, G. A. Comack, Capt. Tryan, G. E. Burbank.

The last meeting of the McHenry County Farmers' Institute was held at the Court House, Woodstock, January 27-28, 1897, under the following management: President, M. Zimplemann; Vice President, O. M. Hale; Secretary, Frank T. Barnes; Treasurer, Thomas O'Cock; Executive Committee, F. C. Wells, C. W. Harrison, R. W. Overton, George Hunt, G. E. Burbank.

The programme was carried out as follows:

Wednesday afternoon, January 27.

Institute called to order by President; Prayer, Rev. N. A. Sunderlain; Methods of Seeding Grasses and Clovers and Successfully Checking Chinch Bugs, Clarence A. Shamel, of the Orange Judd Farmer; Value of Corn Fodder, G. B. Richards. Discussion.

The Silo and Silage Feed Discussed; Special Breeds of Jersey Cows, by Hon. B. F. Wyman. Discussion.



F. T. BARNES, Secretary.

MENARD COUNTY FARMERS' INSTITUTE.



F. H. RANKIN, President.

Music; Mutual Farm Insurance, Col. Chas. F. Mills; recitation, Miss Carrie Hornback; paper, Improvement in Our Public Highways, Hon. Homer J. Tice; recitation, Miss Etta Roberts; paper, Education of our Country Boys and Girls, What Shall It Be?, Miss Jessie Smith; paper, The Farmer's Garden, Wm. H. Helstern.

Wednesday, January 20, 1897.

Morning session, 9 o'clock.

Music; prayer, Rev. W. G. Archer; paper, Breeding and Feeding of Swine for the Pork Barrel, Frank H. Whitney; discussion, Wm. H. Graham, J. D. Primm, Chas. Pursell; paper, Corn Culture, Rev. J. M. Johnson; discussion, Henry H. Houghton, W. E. Johnson, Jepson Grosboll; recitation, Willie Montgomery; paper, Noxious Weeds, I. H. Beard; discussion, S. D. Masters, S. T. Rogers; music.

Afternoon session, 1:30 o'clock.

Music, quartette, Margie Young, Nina Turner, Earl Kincaid, Will Young; paper, Clover, the Farmer's Best Friend, A. N. Cherry, discussion, W. C. Smoot, H. H. Marbold; recitation, Anna Pitzer; paper, Mrs. Chas. C. Judy; paper, Dairy Interests, Wm. Stevenson, Jacksonville; discussion by the ladies; paper, Farm Finances, Henry B. Rankin, Jacksonville; discussion, H. H. Marbold; music.

The following officers were elected for the ensuing year: President, Fred H. Rankin, Athens; Vice-President, J. N. Johnson, Petersburg; Secretary, H. A. Wood, Petersburg; Treasurer, Jacob F. Bergen, Petersburg; Executive Committee, J. S. Miles, Petersburg; R. Y. Kincaid, Athens; R. C. Pintill, Petersburg; T. H. Alkire, Sweet Water; J. A. Smedley, Petersburg.

The Menard County Farmers' Institute was organized in Petersburg, Ill., pursuant to a call for such a meeting by R. Y. Kincaid and Fred H. Rankin, of Athens. The meeting was held at the court house, by a goodly number of farmers and citizens of the county, December 14, 1895, an organization effected and arrangements made for an institute to be held in Petersburg, March 13 and 14, 1896. The second institute was held January 19 and 20, 1897, by the following officers: President, Fred H. Rankin, Athens; Vice-President, Homer J. Rice, Greenville; Secretary, H. A. Wood, Petersburg; Treasurer, Jacob F. Bergen, Petersburg; Executive Committee, Jas. S. Miles, Petersburg; R. Y. Kincaid, Athens; Ely Reep, Petersburg; John Terhune, Sweet Water; Henry Williams, Athens; Wm. Helstern, Atterbury; James Self, Petersburg; Mrs. Wm. Masters, Petersburg; Mrs. Belle Kincaid, Athens. The programme of the meeting held at the opera house, Petersburg, January 19 and 20, 1897, is as follows:

Tuesday, January 19, 1897.

Morning session, 9 o'clock.

Music, male quartette; prayer, Rev. Theo. Kemp; address of welcome, Hon. T. W. McNeely; response, H. A. Wood, Secretary; paper, Outlook for Our Horse Breeding Interests, John H. Kincaid; discussion, Geo. Williams, H. J. Marbold, Elder J. E. Davis, G. W. Hatch; paper, Our Beef Cattle Interests, Geo. D. Warning; discussion, C. C. Judy, Eli Reep; recitation, Powell Grosboll; paper, Our Sheep Interests, James A. Stone, Sangamon county; discussion, Hon. A. G. Nance, R. Y. Kincaid; music.

Afternoon session, 1:30 o'clock.



H. A. Wood, Secretary.

MONTGOMERY COUNTY FARMERS' INSTITUTE.



WM. A. YOUNG, President.

Agnes Ball Thomas, Thomasville, Ill.; paper, Evolution of the Apple, W. A. Young, Butler, Ill.; music by band.

Wednesday, February 17, 1897, 10:30 o'clock.

Prayer, Rev. W. P. Baker, Hillsboro, Ill.; paper, Drainage and Fertilizers, Arthur Ware, Butler, Ill.; discussion, C. W. Colby; music, Ware's Grove Quartette; address, Raising and Feeding Hogs, Charles Baxter and S. E. O'Bannon, Litchfield, Ill.; discussion; music, male quartette.

Afternoon session, 1:30 o'clock.

Music, violin solo, Master Wilson, Irving, Ill.; paper, General Dairying, Robert Bryce, Butler, Ill.; address, The Horse, Henry Ludwick, Hillsboro; address, The All-Purpose Horse, J. D. Kendall, Waggoner, Ill.; discussion; music, quartette; paper, Horticulture for the Farm, W. E. Hutchinson, Litchfield, Ill.; discussion, J. B. Hutchinson; address, Humbugs and Shams, C. J. Upton, Barnett, Ill.; Question Box; Can Smut be Killed in Oats, James A. Short; report of committee on resolutions, Frank Denton and J. K. McDavid; music, violin solo.

Evening session, 7:30 o'clock.

Music, Prof. Pierson's Band; paper, Education of the Farmer, Prof. Josiah Bixler, Hillsboro, Ill.; discussion, J. E. Colvin, Amos Miller, William McCracken; music, address to the girls, Mrs. G. W. Paisley, Paisley, Ill.; closing address, humorous, Hon. C. W. Bliss. An attractive feature of the meeting was the decorations, which included among other things a miniature log cabin made of ears of corn. There was a large exhibition of grain, vegetables, etc. The officers for the ensuing year are the same as above.

The Montgomery County Farmers' Institute was organized at Hillsboro, December 27, 1895. Two Institutes have been held at Hillsboro, the first February 27-28, 1896; the second February 16-17, 1897. The last meeting was under the management of the following officers: President, Hon. Wm. A. Young, Butler; vice-president, Robert Bryce, Butler; treasurer, A. A. K. Sawyer, Hillsboro; secretary, E. C. Richards; executive committee, Wm. A. Young, Robert Bryce, A. A. K. Sawyer, E. C. Richards, E. J. File, Chas. Baxter. The programme of the meeting held at Hillsboro February 16-17, 1897, is as follows:

Tuesday, February 16, 1897.

Morning session, 10 o'clock.

Prayer, Rev. Ezra Keller, Hillsboro, Ill.; address of welcome, Hon. J. M. Smith, Hillsboro, Ill.; response by President W. A. Young, Butler, Ill.; music, Ware's Grove Quartette; address, Small Fruits for Family Use, Jesse Osborn, Butler, Ill.; discussion, Prof. A. C. Williams, Prof. Barrett, L. H. Thomas, Burrell Phillips.

Afternoon session, 1:30 o'clock.

Music, Ware's Grove Quartette; paper, Breeding and Feeding Cattle for Profit, L. H. Thomas, Thomasville, Ill.; discussion, Lyman Ware; address, Feeding Hogs, Elias Easterday, Rev. Rainey; music, quartette; Question Box; address, Good Roads, James Young, Nokomis; discussion, Robert Bryce, Arthur Ware; Clover Raising, E. C. Richards, A. A. K. Sawyer, Frank Rucker.

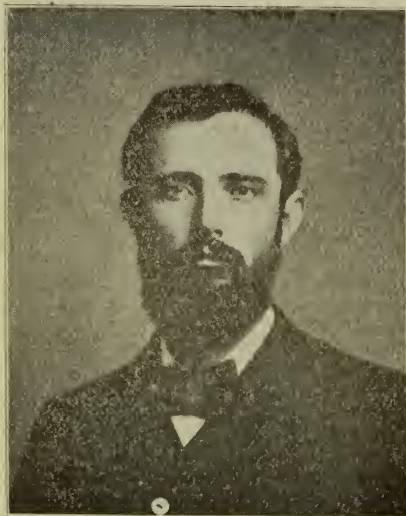
Evening session, 7:30 o'clock.

Music, Prof. Pierson's Band; address, Township High Schools, C. J. Upton, Barnett; discussion; address, Cruelty to Dumb Animals, James Glenn; music, Light Guard Band; paper, Home Life on the Farm, Mrs.



E. C. RICHARDS, Secretary.

PUTNAM COUNTY FARMERS' INSTITUTE.



A. J. ROBINSON, President.

tary of the Farmer's Table be Improved upon in the Interest of Health and Economy? Mrs. O. Bumgarner; discussion, by Mrs. Albert Stickel and Mrs. C. M. Chase.

Wednesday evening, 7 o'clock.

Recitation contest, participated in by two pupils from the public schools of each township in the county, making eight contestants in all.

Thursday, January 7, 1897.

Morning session, 9 o'clock.

Prayer, Rev. J. P. Campbell; music: Country Telephones, Hon. J. M. McNabb and Dr. C. C. Mills; paper, Rural Mail Delivery, J. O. Winship; general discussion; Small Fruits on the Farm, E. S. Fursman; State Institute Organization, Oliver Wilson.

Afternoon session, 1:30 o'clock.

Election of officers; paper, Our Public Schools, Miss Nettie Dahl; discussion, by John Swaney and W. E. Hawthorne; paper, Farm Dairy, J. A. Kays; discussion, by Mrs. V. H. Wheeler and Levi Shepard.

The Putnam County Farmers' Institute was organized in 1888. Institutes have been held in the county as follows: 1890, at Hennepin; 1891, Granville; 1892, Clear Creek; January, 1893, at Hennepin; February 11-12, 1896, at Hennepin, and January 6-7, 1897, at Hennepin.

The last meeting was held by the following officers: President, A. J. Robinson, Granville; vice president, T. A. Wheeler, Putnam; secretary, W. B. Mills, Mt. Palatine; executive committee, H. K. Smith, Clear Creek; A. W. Hopkins, Granville; H. B. Zenor, Hennepin.

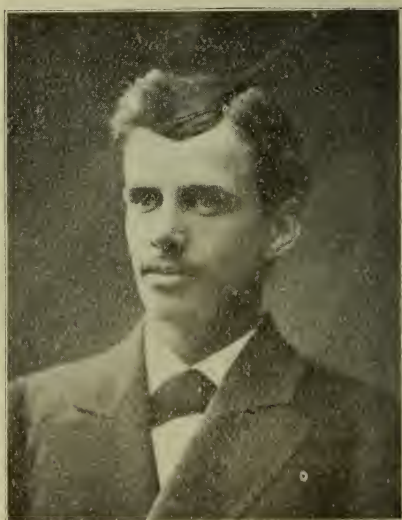
The programme of the institute held at Hennepin January 6-7, 1897, is as follows: Wednesday, January 6, 1897.

Morning session, 10:30 o'clock.

Reception and installation of exhibits: address of welcome, J. E. Taylor; response, Mrs. Richard Harrison; president's address, A. J. Robinson.

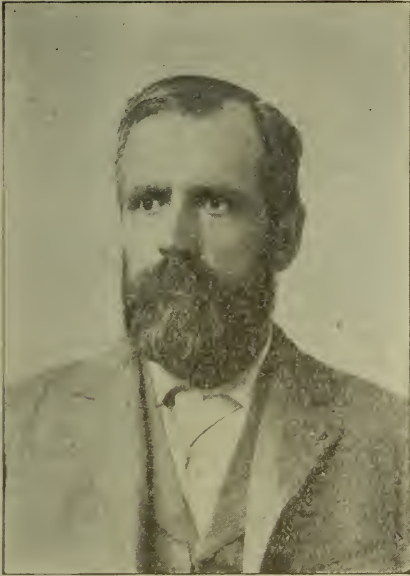
Afternoon session, 1:30 o'clock.

Prayer, Rev. J. C. Zeller; music; paper, Landlord and Tenant—Their True Relation, H. K. Smith; discussion, by G. N. Hayslip and Walter Griffith; Institute Work, E. S. Fursman, El Paso, Ill.; paper, Can the Die-



W. B. MILLS, Secretary.

RANDOLPH COUNTY FARMERS' INSTITUTE.



G. W. WILSON, President.

Thursday—Night session, 7 o'clock.

Prayer, Rev. W. J. Smiley; music; address, Prof. S. B. Hood, Sparta; song; "Relation of the Farmers to the High Schools," J. R. McIlroy, Sparta; general discussion; adjournment.

Friday—Forenoon session, 10 o'clock.

Prayer, Rev. W. T. Wylie; "Planting and Caring for Strawberries," Jas. Alexander, Sparta; song; question box: "The Rise and the Fall of Farming," W. T. White, Curler; general discussion; adjournment.

Friday—Afternoon session, 1 o'clock.

Prayer, Rev. J. R. McIlroy; song; "The Outlook for the American Hog," G. H. Helms, Belleville; "Rural Free Mail Delivery, and Organization of Farmers," Hon. A. B. Ogle, Belleville; questions; election of officers; reports of committees; reading and approving of minutes; adjournment.

The exhibit of farm products was extra fine and many premiums were given by the business men of Sparta.

The election of officers resulted as follows: President, George W. Wilson, Secretary, S. S. Taylor, Treasurer, J. H. Moreland, all of Sparta; Executive Committee, S. W. McKelvey, Sparta, James M. Clark, Sparta, James Caldwell, Tilden.

The Randolph County Farmers' Institute held its first meeting under the present law at Sparta February 27-28, 1896. The second institute was held in the opera house at Sparta, January 28-29, 1897, under the following management: President, Geo. W. Wilson, Secretary, S. S. Taylor, Treasurer, J. H. Moreland, all of Sparta; Executive Committee, S. W. McKelvey, Jas. M. Clark, both of Sparta, Jas. A. Caldwell, Tilden.

The programme of the late meeting is as follows:

Thursday—Forenoon session, 11 o'clock.

Called to order by President, G. W. Wilson; prayer, Rev. H. H. Young; opening remarks, by President G. W. Wilson; song; "Our Public Highways," opened by John Pier, Six Mile; general discussion; song; adjournment.

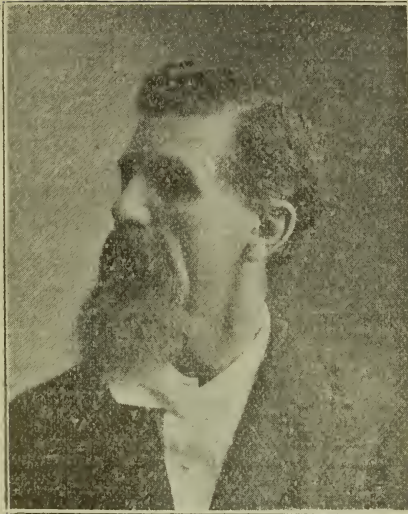
Thursday—Afternoon session, 1 o'clock.

Prayer, Rev. C. N. Cate; music; "Planting and Caring for an Orchard," J. M. Campbell, Sparta; general discussion; address, Mr. S. Pyle, of "Colman's Rural World"; adjournment.



S. S. TAYLOR, Secretary.

SANGAMON COUNTY FARMERS' INSTITUTE.



B. F. WORKMAN, President.

F. Maxey, Pasfield; paper, Fertilizers for Sangamon Co. Farms, Waldo Beam, Cotton Hill; paper, Clover and Manures, Alex. Ernst, Farmingdale.

Afternoon session, 1:30 o'clock.

Music; prayer; paper, Poultry on the farm, Miss Hattie Ballard, Bradfordton; paper, Co. operation Among Sangamon Co. Farmers, Col. Charles F. Mills, Springfield; paper, The Springfield Market for Home-Grown Products, W. W. Swett, Springfield; paper How to Improve the Local Market for Home-Grown Products, B. F. Buckman, Farmingdale.

Evening session, 7:30 o'clock.

Music; prayer; paper, The Farmer's Girl, Miss Lizzie Christesen, Auburn; music, mandolin and guitar; paper, How the Farmer Boy Succeeds, Percy Stone, Bradfordton; music, mandolin and guitar; The Farmer's Wife, Mrs. N. E. Kennedy, Diverno; music; paper, The Country School, Prof. H. S. Magill, Jr., Auburn; music; paper, The Country Church, Rev. B. Forester, Auburn; adjournment.

Thursday, Oct. 22, 1896.

Morning session, 9 o'clock.

Music; prayer; Lessons of the State Fair; Live Stock Exhibit, J. H. Pickrell, Springfield; Farm Products, G. W. Dunseth, Waverly; Fruit Exhibit, J. W. Cogdal, Springfield; Exhibit Farm Machinery, L. H. Coleman, Springfield; Culinary Exhibit, Mrs. E. F. Iles, Springfield; Exhibit Art and Needlework, Mrs. Horace Landon, Auburn; paper, Our Draft Horse Industry, J. Frank Smith; paper, Breeding and Feeding Swine for the Pork Barrel, Fred H. Rankin, Athens; paper, How to Sell Stock, J. H. Maxey, Pasfield; paper, Our Meat Supply, Horace Landon.

The Sangamon Co. Farmers' Institute was organized in 1892. Institutes have been held at Springfield as follows, viz: March 15-16, Dec. 7-8, 1892; March 22-23, Dec. 22-23, 1893; April 3-4, Dec. 4-5, 1894; Dec. 4-5, 1895. The last Institute was held at Auburn, Oct. 21-22, 1896, under the following management: Pres. B. F. Workman, Auburn; Vice-Pres. A. L. Converse, Springfield; Sec., James A. Stone, Bradfordton; Treas., L. H. Coleman, Springfield; Executive Com., B. F. Workman, A. L. Converse, James A. Stone, L. H. Coleman, B. F. Buckman, Farmingdale; Charles F. Mills, Springfield; Charles E. Vigal, New City; Horace Landon, Auburn, and G. W. Dunseth, Waverly.

The program of the Institute meetings held Oct. 21-22, 1896, is as follows:

Wednesday, Oct. 21, 1896.

Morning session, 10 o'clock.

Music; prayer; address of welcome, Mr. C. T. Murphy; response, Hon. A. L. Converse; president's opening address, B. F. Workman; reading minutes by secretary, J. A. Stone; report of treasurer, L. H. Coleman; music; paper, Butter Making, Mrs. H. S. Magill, Auburn; paper, The Farm Home, L.



JAMES A. STONE, Secretary.

Sangamon County Farmers' Institute.—Continued.

Afternoon session, 1:30 o'clock.

Paper, Household Economy, Mrs. Senator John M. Palmer, Springfield; address, "What Shall the Illinois Farmer Do to Adjust Himself to the Present Agricultural Conditions?" Prof. Eugene Davenport, Champaign, Dean Agricultural College, University of Illinois; paper, Wheat Culture in Sangamon County, Simpson Van Winkle, Auburn; paper, Corn Culture, H. S. Magill, Sr., Auburn; adjournment.

Five thousand copies of the above programme were printed and distributed to the farmers of this county by the proceeds of advertisements of the business men of Springfield.

The exhibition of grain, fruit, vegetables, bread, cakes, butter, jellies, pickles, and other pantry stores, pot plants, cut flowers, poultry, pigs, etc., occupied a warehouse 20x80 feet and was one of the chief attractions of the Institute. Merchants of Auburn and Springfield offered premiums of various articles of merchandise for the exhibits.

Five thousand copies of a twenty-page (10 in. by 15 in.) report were published of the proceedings, papers read at the Institute and mailed to the farmers of the county by the proceeds of advertisements of the business men of Springfield and Auburn.

The next meeting of the Sangamon County Farmers' Institute will be held at Pleasant Plains, Tuesday, Wednesday and Thursday, October 12, 13, and 14, 1897, under the auspices of the officers-elect, viz:

Pres., E. D. Boynton, Pleasant Plains; Vice-Pres., J. F. Prather, Williamsville; Sec'y, James A. Stone, Bradfordton; Treas., L. H. Coleman, Springfield; Executive Com., Charles F. Mills, Springfield; B. F. Workman, Auburn; A. L. Converse, Springfield; G. W. Dunseth, Waverly; John Upton, Springfield; P. F. Kimble, Springfield.

CONSTITUTION.

ARTICLE I.—NAME.

This organization shall be known as the Sangamon County Farmers' Institute.

ARTICLE II.—OBJECT.

Section 1. The object of this Institute shall be for the purpose of teaching better methods of farming, stock raising, fruit culture and all the branches of business connected with the industry of agriculture;

and it shall not be operated in the direct interest of any party, grange, alliance, farmers' club, sect, society or other organization, but for the equal good of all citizens and farming communities.

Sec. 2. No subject shall be presented at the Institute meeting or discussion allowed of a political or sectarian nature; nor shall any speaker be allowed in his lecture, essay or speech, or in any discussion, to advertise wares or schemes in which he has a direct or indirect interest. The officers of the Institute shall see that the exercises are not subordinated to any low or frivolous entertainments or to the aggrandizement of any individual party or sect.

ARTICLE III.—MEMBERSHIP.

Section 1. The membership of this Institute shall consist of reputable farmers interested in the promotion of agriculture, who may subscribe to this constitution and pledge observance to the rules of the Institute. Honorary membership may be conferred by vote of the Institute in consideration of eminent character and services in the advancement of agriculture or horticulture and shall be conferred without fees or dues. The recipient shall not be entitled to hold office and may take part in all discussions and vote on all questions.

Sec. 2. The annual dues of members shall be one dollar per annum, which fee shall be placed to the credit of the premium fund and paid as prizes for exhibits made at the annual meeting of the products of the farm, produced in Sangamon county. The wives of members shall be entitled to all privileges without fees.

ARTICLE IV.—OFFICERS.

Section 1. The officers of the Association shall consist of a President, Vice President, Secretary and Treasurer and Librarian.

Sec. 2. The following standing committees shall be appointed at each annual meeting to serve for the ensuing year, viz.: Executive, Program, Advertising, Finance, Exhibits, Music, Household Economy, Reception and Entertainment.

Sec. 3. The management of the business of the Institute shall be vested in the Executive Committee, to be composed of the officers and chairmen of the standing committees.

ARTICLE V.—DUTIES OF OFFICERS.

Section 1. It shall be the duty of the President to preside at all meetings of the Institute and the Executive Committee and en-

Sangamon County Farmers' Institute--Concluded.

force a due observance of the constitution, rules of order of the Institute and generally discharge the duties pertaining to his position in deliberative bodies. He shall sign all orders on the treasury for expenses duly authorized. He shall recommend in writing for appointment the standing committees or such other committees as may be authorized at the annual meeting or by the Executive Committee.

Sec. 2. In the absence of the President, the Vice President shall perform his duties. In the absence of the President and Vice President, the members present may select a chairman to act *pro tempore*.

Sec. 3. It shall be the duty of the Secretary to be present at all meetings of the Institute and the Executive Committee and faithfully make and preserve the record of all the proceedings of such meetings, which record shall be kept in a suitable place accessible to the inspection of any member. It shall be his duty to conduct the correspondence and perform such duties as will further the object of the Institute. He shall draw and countersign orders upon the Treasurer for moneys appropriated and previously authorized by the Institute or Executive Committee and perform such other duties as may be prescribed.

Sec. 4. All funds of the Institute shall be placed in the hands of the Treasurer and as authorized by the Institute or Executive Committee; he shall pay out the same upon the order of the President, countersigned by the Secretary. He shall furnish at the annual meeting or oftener, if required by the Executive Committee, a detailed statement of its finance accompanied with bank book, containing said account; the exhibit of finances to give the sums and sources of money coming into his hands, and he shall produce, properly signed orders, duly endorsed, for all sums paid out by him. He shall promptly deliver to his successor in office, all books, papers, property and money of the Institute which may be in his possession.

Sec. 5. The Librarian shall have charge of the library and its appurtenances, regulating the use of the same by the members as prescribed by the Institute. He shall make a full and complete report in writing of the condition of the library at the annual meeting, and at such other times as the Institute may direct. He shall, within one week after the annual meeting, deliver to his successor

in office, the library and its appurtenances, and all books, papers and documents in his possession belonging to the Institute.

Sec. 6. All officers or members of committees shall be subject to removal by a two-thirds vote of the members of the Executive Committee for non-performance of their duties or other sufficient cause, due notice having been given of the meeting called for said purpose.

ARTICLE VI.—ELECTION OF OFFICERS.

Section 1. The election of officers shall be held at the annual Institute by ballot and a majority of the votes cast shall be necessary to a choice.

Sec. 2. Each member (not in arrears) in the election of officers shall have the right to vote in person or by proxy for the several officers.

Sec. 3. The terms of office shall commence at the adjournment of the annual Institute at which elected, and continue for the ensuing year or until their successors are elected.

ARTICLE VII.—MEETINGS.

The annual Institute meeting shall be held at such time and place as the Executive Committee may determine, and to be so located from time to time as to afford the farmers in different sections of the county opportunity to attend meetings near their respective homes. Special meetings and the spring and fall picnics of the members to be determined by the Executive Committee as to time and place.

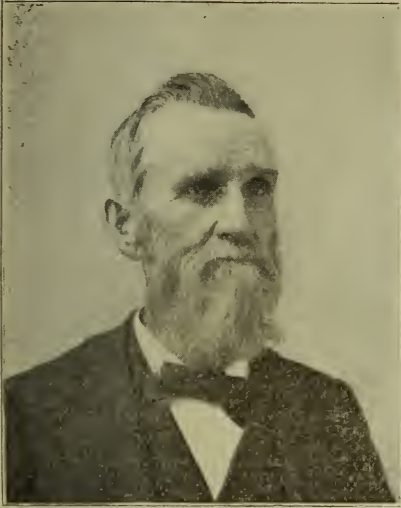
ARTICLE VIII.—BY-LAWS.

The Executive Committee may adopt such by-laws, rules and regulations for the advancement of the objects of the Institute as may be necessary from time to time and not in conflict with the foregoing constitution.

ARTICLE IX.—AMENDMENTS.

No alterations or amendments can be made to the constitution except at the annual meeting or special meeting called for that purpose and then by a two-thirds vote of the members present. A written notice setting forth the alteration or amendment having been sent with the notice of the regular or special meeting at least ten days previous to the consideration of the proposed change.

STARK COUNTY FARMERS' INSTITUTE.



H. H. OLIVER, President.

Evening session, 7:30 o'clock.

Music; address. The Horse, E. S. Fursman.

Friday, January 29, 1897.

Morning session, 10 o'clock.

Prayer, Rev. L. F. Cullom; What Class of Cattle Should the Farmer Raise? Elon Steer; Horticulture, Irvin Ingels.

Afternoon session, 1 o'clock.

Music: Farm Education, Henry Nowlan; How to Keep Up the Fertility of Our Farms, Wilber Snare; The Education of the Farmer's Daughter, Margaret Oliver; Fruits, T. D. Church; question box.

The next institute will be held at Wyoming, date to be decided later.

The following officers were elected for the ensuing year: President, H. H. Oliver; secretary and treasurer, E. B. Lyon; executive committee, Thomas J. Dryden, West Jersey; Irwin Nowlan, Toulon; George T. Oliver, Elmira; John Eastman, Toulon; John H. Ode, Toulon; John A. Colgan, Wyoming; Wilber P. Snare, Castleton; S. A. Foster, Bradford.

The Stark County Farmers' Institute was organized at Toulon on September 21, 1895, and institutes have been held as follows: October 19, 1895, February 20-21, 1896, and January 28, 29, 1897. The last institute, held at Toulon January 28-29, 1897, was under the following management: President, H. H. Oliver; secretary, Joseph Chase; treasurer, A. J. Finley; executive committee, Geo. D. Slygh, Toulon; Lewis Egbert, West Jersey; Simon Cox, Wyoming; John A. Colgan, Wyoming; James E. Snare, Castleton; Cyrus Bock, Bradford; George Murray, Elmira; T. D. Church, Lafayette.

The following is the programme of the last meeting:

Thursday, January 28, 1897.

Morning session, 10:30 o'clock.

Prayer, Rev. G. A. Francis; address of welcome, J. H. Rennick, State's Attorney; response, H. H. Oliver, president of institute.

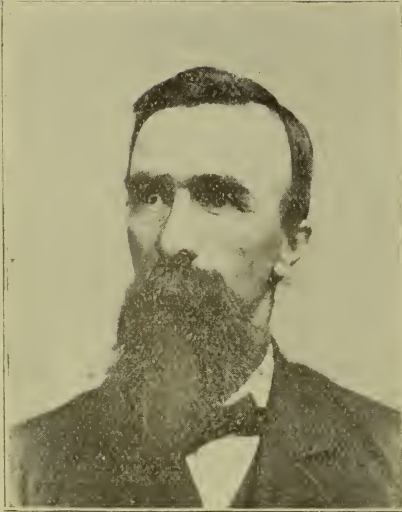
Afternoon session, 1 o'clock.

Music: Grasses for Pastures and Meadows, Irvin Nowlan; Education of the Farmer's Boy, Olin Orendorff; question box and little things.



JOSEPH CHASE, Secretary.

STEPHENSON COUNTY FARMERS' INSTITUTE.



J. W. STOCKS, President.

Evening session.

Song by High School Glee Club; Address of Welcome, Ald. George E. White; Response, Senator Homer F. Aspinwall; The New Farmer, S. M. Mulnix, Damascus; The Liquor Traffic and the Farmer, Miss M. Lena Morrow, Freeport; Music, High School Mandolin Club, Freeport.

Wednesday forenoon.

Song, Quartette; The Construction and Maintenance of Good Roads, Arthur Lagron, City Engineer, Freeport; Discussion: Instrumental Music, Coral Caves, Gust. Landolt, Freeport; Opportunity and Obligation, Frank Clingman, Winslow; Organization Among Farmers, Hon. George W. Curtiss, Stockton; Does It Pay to Build and Use Silos? J. J. Mason, Polo; D. F. Thompson, Kent; Music, Quartette.

Afternoon session.

Music by Quartette; Reports of Committees; Election of Officers; Cheapest Method of Milk Production and How to Feed a Cow for Five Cents a Day, A. G. Judd, Dixon; A Balanced Feed Ration, W. C. Swanzy, Ridott; The Care and Disposition of Dependent Children, Miss Julia Lathrop, Rockford; The Needs of the Hour, Oliver Wilson, M. S. G., Magnolia; Song, Quartette.

Next institute to be held at Freeport. Officers elected to take charge of next meeting: President, J. S. Walker, Rock Grove; treasurer, F. B. Walker, Dakota; secretary, S. M. Mulnix, Damascus; assistant secretary, L. M. Swanzy, Ridott; executive committee, same as last year.

The Stephenson County Farmers' Institute was organized November 10, 1894, at Freeport, Ill. Institutes have been held at Freeport February 13-14, 1895; January 30-31, 1896, and February 9-10, 1897. The last meeting was under the following management: President, J. W. Stocks; Eleroy; treasurer, F. B. Walker, Dakota; secretary, S. M. Mulnix, Damascus; executive committee, J. S. Walker, W. T. Lamb, Geo. F. Swarts, W. L. Lawhorn, H. Lightenberger, Chas. Saxby.

The programme of the meeting held at the court house, Freeport, Ill., February 9-10, 1897, was as follows:

Tuesday morning.

Song, Quartette; Prayer, Rev. W. C. Spencer; Objects of the Institute, President J. W. Stocks, Eleroy; Scientific Breeding, J. J. Shaffer, Rock Grove; Appointment of Committees: False Notions of Liberty, J. S. Best, Freeport; Question Box; The Care and Management of Hogs, H. F. Barr, Dakota; Song, Quartette.

Afternoon session.

Song by Quartette; A Tribute to the Horse, Dr. Jas. Albright, Damascus; How to Keep the Boys on the Farm, Mrs. G. W. Shippy, McConnell's; Hygiene, Miss M. Lena Morrow, Freeport; Discussion, J. A. Phillips, Damascus; Manners Our Passport in Life, Miss Ada Blakeway, Ridott; Artemus Ward's Fourth of July Oration, Lester B. Brady, Freeport; Song, Quartette.



S. M. MULNIX, Secretary.

WABASH COUNTY FARMERS' INSTITUTE.



J. B. STROH, President.

recitation, Blanche Legier, Keensburg, Ill.

Evening session, 7:00 p. m.

Music; prayer, Rev. J. F. Harmon, Mt. Carmel, Ill.; Farm Institutes, L. N. Beal, Mt. Vernon, Ill.; discussion; music; recitation, Miss Mabel Wilkinson, Mt. Carmel, Ill.; music; essay, Mrs. L. T. Phillips, Mt. Carmel, Ill.; Tom and His Teachers, Prof. J. T. Dobell, Mt. Carmel, Ill.; discussion; music; recitation, Miss Bertine Bell, Mt. Carmel, Ill.; music.

Wednesday, morning session, 9:30 a. m.

Music; prayer, Rev. J. H. Stotler, Mt. Carmel, Ill.; Maintaining the Fertility of the Soil, Samuel C. Mary, Lancaster, Ill.; discussion: Poultry Raising for Profit, O. H. Wood, Friendsville, Ill.; discussion: Swine Breeding, J. R. Harper, Mt. Carmel, Ill.; discussion.

Afternoon session, 1:00 p. m.

Music; Old Times in Wabash County, Hon. Jacob Zimmerman, Mt. Carmel, Ill.; discussion: The Wife's Assistance in Farming, Mrs. S. A. Williams, Friendsville, Ill.; discussion: Success and Failure in Fruit Growing, Dr. J. C. Utter, Mt. Carmel, Ill.; Tile Draining, Alex. Compton, Keensburg, Ill.; discussion: The Destruction of Noxious Weeds, Hallock Shearer, Gards Point, Ill.; music; adjournment.

The officers elected for the ensuing year are: President, Thos. Stone; vice-president, J. B. Stroh; secretary, J. E. Seiler; treasurer, H. T. Goddard, all of Mt. Carmel; executive committee, C. C. Lingenfelter, Mt. Carmel; Alex. Compton, Keensburg; C. S. Andrews, Patton; Hallock Shearer, Gards Point; Wm. Courter, Alendale. The next meeting will be held in October, 1897.

The Wabash County Farmers' Institute was first instituted under the auspices of the Wabash County Pomona Grange, and the present organization was completed Dec. 18, 1895. Two Institute meetings have been held, the first December 18-19, 1895, the second, December 16-17, 1896, at Mt. Carmel. The last meeting was under the following management: President, J. B. Stroh; vice-president, Hallock Shearer; secretary, S. S. Seiler; treasurer, James Mahon, all of Mt. Carmel; executive committee, J. E. Siler, Mt. Carmel; Martin Stevens, Lancaster; Wm. Marvel, Mt. Carmel; Abner Sheppard, Friendsville; Wm. Shafer, Keensburg.

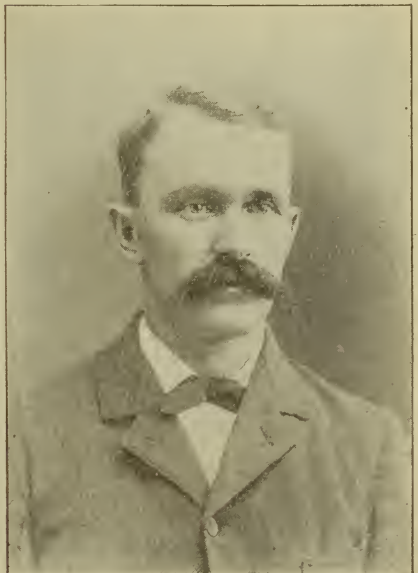
The programme of the late meeting is as follows:

Tuesday, morning session, 9:30 o'clock a. m.

Organization; appointment of committees; opening prayer, Rev. J. F. Harmon, Mt. Carmel, Ill.; address of welcome, F. W. Havill, Mt. Carmel, Ill.; response, L. N. Beal, Mt. Vernon, Ill.; report of committee on organization.

Afternoon session, 1:00 p. m.

Music; agricultural education, Professor Eugene Davenport, of University of Illinois; discussion; The Farmer's Daughter, Miss Ida Risley, Mt. Carmel, Ill.; discussion; The Baby Beef, W. E. Neal, Bridgeport, Ill.; discussion; recitation, Ella Wright, Maud, Ill.;



S. S. SEILER, Secretary.

WAYNE COUNTY FARMERS' INSTITUTE.



E. A. RANKIN, President.

Wayne County Farmers' Institute was organized November 30, 1895. Institutes have been held in Fairfield as follows: Jan. 24-25, 1896; Nov. 24-25, 1896; Feb. 3-5, 1897. The last one was under the management of E. A. Rankin, president; S. W. Steward, vice-president; W. C. Davis, secretary, all Fairfield; J. W. Cable, treasurer, Boyleston; executive committee, W. H. Essington, O. B. Simpson; A. B. Porter, J. J. England, Fairfield; G. M. Davis, Barnhill.

Program of Institute held Feb. 3-5, 1897, is as follows:

Wednesday. Afternoon session.

Opening Exercises; Devotional; Address of Welcome. Hon. E. C. Kramer; Response, L. N. Beal, Mt. Vernon; Insects Injurious to Farmers, Prof. G. H. French, Carbondale; Discussion; Prize Essay: The Most Profitable Breed of Chickens for a Farmer.

Evening session.

Opening Exercises; Music, Quartet; Picking and Handling Winter Apples, Geo. M. Karr, Johnsonville; Recitation, Edith Worley; Discussion, Wat Bestow, Jeffersonville; Recitation, Lucy Morris, of Public School; Insects Injurious to Orchardists, Prof. G. H. French, of State Normal; Recitation, Nellie Johnson, Public School; Music, Quartet.

Thursday. Morning session.

Opening Exercises; Invocation; Cattle Feeding, J. C. Bothwell, Zif; Discussion; Recitation, Miss Fay Scott, Boyleston; Prize Essay: How to Keep the Veal Calf at Home; Discussion.

Afternoon session.

Music; Prize Essay: How to Make and Market Butter; Discussion; Recitation, Miss Sarah Green, Boyleston; Healthful Feeding of Farm Animals, Prof. Donald McIntosh, Champaign; Discussion, Dr. S. Snyder; Agricultural Education, J. W. Barbee, Albion; Discussion.

Evening session.

Music by Quartet; Recitation, Frank Smith; Wounds of Farm Animals Caused by Wire Fences, Prof. D. McIntosh, V. S.; Recitation, Miss Daisy Rider; Paper by Mrs. L. N. Beal, Mt. Vernon, Ill.; Shippers' Organization, E. G. Mendenhall, Kimmunity; Music by Quartet.

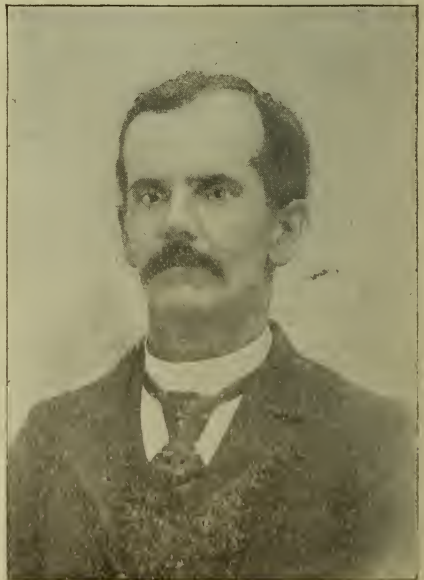
Friday. Morning session.

Invocation; Prize Essay: What a Farmer's Boy Ought to Know; Discussion; Prize Essay: Poultry Raising for Profit; Discussion; Economy in Human Foods, D. K. Davis; Discussion.

Afternoon session.

Benefits of Level Cultivation of Crops, Ezekiel Hunsinger, Burnt Prairie; Soil Fertility, Prof. P. G. Holden, Agricultural College; Discussion.

Next meeting of Wayne County Farmers' Institute will be held at Jeffersonville, Ill., November 3 and 4, 1897, under the management of the officers elect.



W. C. DAVIS, Secretary.

WILL COUNTY FARMERS' INSTITUTE.



A. A. FRANCIS, President.

Harvey, Wilton Center; reading, Miss Vera Thompson, New Lenox.

Friday, February 12—second day—morning session, 9:30 o'clock.

Prayer; music, Marley Male Quartette; What General Improvements do the Farmers' Welfare Most Demand? Dayton Hutchinson, Joliet; Origination of Soils and How to Maintain their Fertility, Wm. Carruthers, E. Wheatland; Coöperative Creamery, E. L. Wilson, Manhattan; Steel Roads, Abel Bliss, New Lenox.

Afternoon session, 1 o'clock.

Music, Marley Quartette; The Education of Farmers' Sons and Daughters, R. J. Barr, Joliet; recitation, Mrs. Godwin; What Changes in the Usual Methods of Farm Leasing are Desirable for the Common Interests of Landlord and Tenant? A. F. Mather, Joliet; The Ideal Farmers' Home, Mrs. Robert Eaton, Joliet; vocal solo, Miss M. Thompson, E. Wheatland; Practical Pointers, D. B. Gilver, Naperville.

Saturday, February 13—third day—morning session, 9:30 o'clock.

Prayer; music, Berger Family Quartette; Indian Corn and its Uses, L. H. Hyde, Joliet; Our Country Schools—Their Needs and Possibilities, A. H. Melville, Normal, Ill.; Is it Desirable for the General Government to Establish Postal Savings Banks? J. E. Francis, New Lenox; recitation, Miss Ruby Cocker, Manhattan; Do the Farmers and Wage Workers of Will County get their Share of the Wealth they Create? Wm. M. Clow, Tokio.

The Will County Farmers' Institute was organized February 9, 1888, and meetings have been held in Joliet as follows: March 8, 1888; October 11, 1888; January 17, 1889; March 7-8, 1889; October 24-25, 1889; February 13-14, 1890; January 23-24, 1891; February 27-28, 1891; October 23-24, 1891; February 18, 19, 20, 1892; February 16, 17, 18, 1893; February 8, 9, 10, 1894; February 7, 8, 9, 1895; February 13, 14, 15, 1896; February 11, 12, 13, 1897.

The last Institute was held in Armory Hall, Joliet, February 11, 12, 13, 1897, under the following management: President, A. Allen Francis, New Lenox; secretary and treasurer, Healy H. Alexander, Lockport; executive committee, James Patterson, Hoddam; John C. Baker, Manhattan; Wm. A. Goodspeed, Wilton Center; Abel Bliss, New Lenox; A. S. Clow, E. Wheatland; H. H. Stassen, Joliet; O. E. Higgins, DuPage P. O.; J. H. Alexander, Lockport. The date of the next meeting has not been fixed.

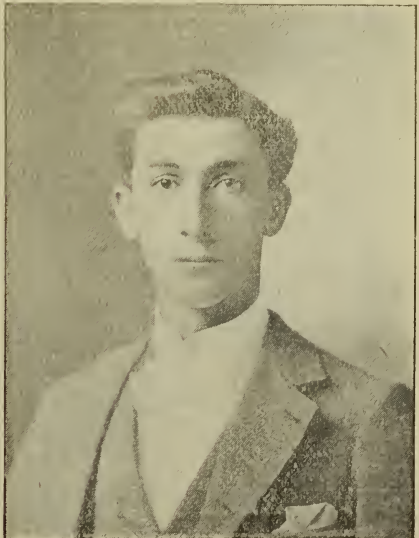
Following is the programme of the fifteenth regular session held February 11, 12, 13, 1897:

Thursday, February 11—morning session, 9:30 o'clock.

Prayer; music, Wheatland Quartette; address of welcome, Hon. Amos Savage, Marley; response, W. A. Goodspeed, Wilton Center; The Memory of Thomas Tait, Peter Shotts, Joliet; Should the Institute Appoint a Farmers' Institute Business Association Committee? Jonathan Mather, Joliet; What Style and Material of Fence is Most Suitable for the Farmer? C. E. Smith, Plainfield.

Afternoon session, 1 o'clock.

Music, Wheatland Quartette; Convict Labor, Leonard Thompson, E. Wheatland; recitation, Miss Bessie Flagg, Plainfield; Microbes, Bacteria and X Rays, Hon. Jabez



H. H. ALEXANDER, Secretary.

BOND COUNTY FARMERS' INSTITUTE.



J. H. GRIGG, Secretary.

The Bond County Farmers' Institute was organized in 1894, and Institutes have been held at Sorento as follows:

September 27-28, 1894; September 18-19, 1895, and September 16-18, 1896.

The last meeting was under the management of the following officers:

Imbert H. Denny, President; E. P. Gracey, Vice-President; J. H. Grigg, Secretary, and F. Dressor, Treasurer; John Hartley, W. C. Gracey, E. W. Denny, C. W. Garrison, Rufus Cruthis, F. W. Burham, Geo. Holmes, Board of Directors.

The programme of the last Institute held at Sorento September 16-18, 1896, was as follows:

Wednesday morning.

Formation of procession on Main street, led by the Elm Point Band. Welcome address. Music by the band. Adjourn for dinner.

Afternoon.

Music by the band. Address, "Fertility of the Soil," by S. Lee Elliott. Music. Short impromptu speeches. Music by the band. Adjourn.

Thursday morning.

Music by the band. Address by C. W. Bliss. Adjourn for dinner.

Afternoon.

Music by the band. Address, "The Relation of the Farmers' Institute to the County Fair, and the Relation of the County Fair to the State Fair," by John Hartley. Music by the band. Contests. Music by the band. Decision of judges and presentation of prizes by Rev. David K. Barber. Music.

Evening.

Music, "Farm Life," by E. P. Gracey. Short talks. Adjourn.

CHRISTIAN COUNTY FARMERS' INSTITUTE.

The Christian County Farmers' Institute was organized in January, 1891, at Pana. Seven Institutes have been held as follows: January, 1891; January, 1892; January, 1893; January, 1894; January, 1895; January, 1896, and February 17-18, 1897. The last meeting, held at Taylorville, February 17-18, 1897, was the Congressional Institute for the district, and was under the following management: President, Harry Grundy, Morrisonville; Vice-President, Wm. Sibley; Secretary, Q. I. Simpson, Palmer; Treasurer, Geo. G. Large, Owaneco; Executive Committee—John W. Hunter, W. D. Coffman, E. A. Vandever, C. B. Simpson. The programme is as follows:

Wednesday, February 17.

Morning session—10:30 o'clock.

Organization. Invocation, Rev. W. W. Wedon. Address of welcome, Mayor R. B. Temple. Response, C. W. Sibley. "Are Farmers' Institutes Conducive to Successful Farming?" Robert A. Gray, John W. Hunter, Pana, Sylvester Schrantz, Stonington, Chas. F. Mills, Springfield, W. T. Baker, Taylorville.

Afternoon session—1 o'clock.

"What is the Secret of Successful Farming?" Col. W. T. Dowdal, Sam C. Wagener, Pana, Geo. T. Barrett, Grove City, Sammie Thompson, Morrisonville, Mark Tolman, Zanolbia, Nick Ollery, Morrisonville. "Cattle Raising and Feeding," M. G. Okey, Judge J. B. White, T. C. Cloyd, Morrisonville, Everett A. Ponting, Moweaqua, E. E. McVicker, Millersville.



Q. I. SIMPSON, Secretary.

GRUNDY COUNTY FARMERS' INSTITUTE.



R. H. DEWEY, Secretary.

Farmers' Wives. Mrs. H. H. Overocker; discussion; music; general business; close. Musical numbers of the day session by Wauponsee Mandolin and Guitar Club.

The Grundy County Farmers' Institute was organized September 21, 1895. The first institute was held at Morris December 13-14, 1895; the second at Mazon February 21, 1896, and the last at Mazon February 26-27, 1897. This meeting was under the management of the officers named below. President, Capt. William Reardon, Morris; secretary, R. H. Dewey, Mazon; executive committee, W. A. Walley, Morris; C. A. Finch, Verona; Willis A. Clark, Carbon Hill; R. Cosgrove, Morris; Henry Jones, Verona.

The following programme was rendered: Friday, February 26, 1897.

Meeting called to order; music; opening address by president, Capt. Wm. Reardon; music; question, Why can not Grundy County Maintain an Agricultural Fair? opened by W. A. Walley; discussion; music; paper; essay, Flowers on the Farm. Mrs. Lyman Hawley; music; question, Boards of Trade—Are they Beneficial or Detrimental to Farmers? S. H. Dewey and John Weldon.

Friday evening, 7:30.

Music; recitation, Out to Old Aunt Mary's, Miss Rose Wilson; address, Should the Greenbacks and United States Treasury Notes be Replaced by Interest Bearing Gold Bonds? Chas. A. Finch; address, The American Horse, Hon. F. J. Berry, of Chicago.

Saturday forenoon, 9:30.

Meeting called to order; music; question, Inequalities of State Taxation, G. W. Ridings; music; address, G. A. Wilmarth; music.

Afternoon session.

Meeting called to order; music; paper, Ruts, W. A. Clark; music; Recreation for

JEFFERSON COUNTY FARMERS' INSTITUTE.

The present organization was completed in 1893 and institutes have been held in Mt. Vernon as follows: Spring of 1893, spring of 1894; February 20-21, 1895; February 6-8, 1896, and January 20-22, 1897. The 1897 institute was under the management of the following officers: President, L. N. Beal; vice president, John Danner; secretary, Rev. J. D. Hooker; treasurer, T. C. Moss.

The following programme was carried out: First day.

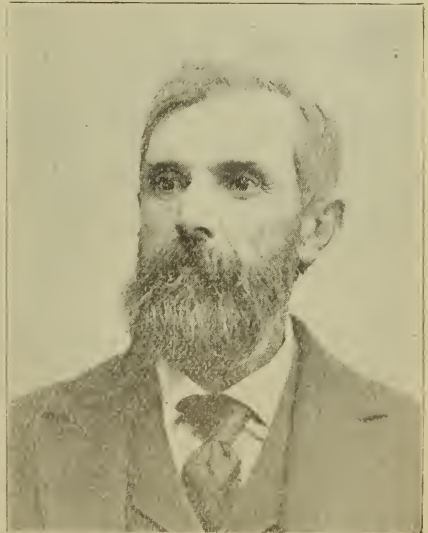
Song service; invocation, Rev. Mr. Douglas, of Mt. Vernon; minutes of last meeting read and disposed of; address of welcome, Mayor B. C. Wells; response, Judge J. K. Driver, Drivers, Illinois; opening address, President L. N. Beal; report of Treasurer T. C. Moss; recess for one hour for greeting and lunch.

Afternoon session.

Song; invocation, Rev. Mr. Smith, Mt. Vernon, Illinois; paper, The Farmer's Home, John Danner, of Shiloh; discussion, John Ferguson and others; paper, Agriculture, Its Past and Probable Future, Chas. Judd Esq., of Moore's Prairie; discussion, Lean der Johnson, H. R. Allen and Horace Maxey.

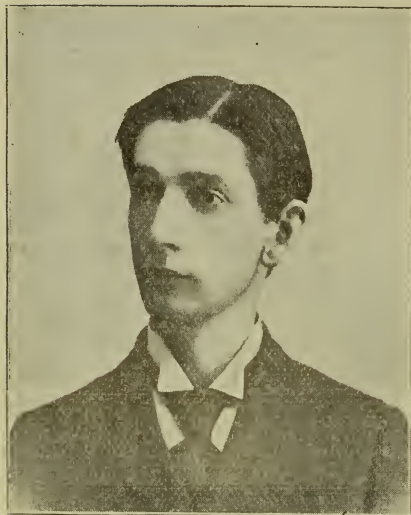
Night session.

Song; invocation, Rev. Mr. McCreary, of Mt. Vernon; music; address, Mayor B. C. Wells, Relation of City to Country; recitations, declamations, music and a good time.



L. N. BEAL, President.

JERSEY COUNTY FARMERS' INSTITUTE.



J. W. BECKER, Secretary.

Friday, February 5th—Morning session.

Vocal music, male quartette; "Weaning and Wintering Colts," F. Van Hoorebeke; "The Trotter and Road Horse," George Voorhees; general discussion; "How to Improve Our Roads," W. H. Fulkerson; question box, Andrew Piggott.

Afternoon session.

Music, male quartette; paper, "The Preparation of Fruits for the Table," Miss Riehl, Alton; "The Farmer's Orchard," J. M. Pearson, Godfrey, Ill.; "Fores ry in Its Relation to Orchard Culture," Rev. C. Nash discussion, C. G. Winn, Griggsville, Ill.; reports from committees; miscellaneous business; adjournment.

Full proceedings of the sessions, including all the papers read, were published in the two county papers, thus scattering the work of the institute.

The next meeting of the Jersey County Farmers' Institute will be held at Jerseyville during the month of February, 1898, under the auspices of the following officers: President, E. A. Riehl, Alton; Secretary-Treasurer, J. W. Becker, Jerseyville. Executive Committee, W. H. Fulkerson, W. D. London, Leslie Cross, Chas. Uptike, Jerseyville; Spencer Wyckoff, W. H. Bartlett, Delhi; J. C. Marshall, Fidelity; V. L. Dodge, Kemper Robert Smith, Elsah; I. N. Noble, Grafton; Wm. Dougherty, Otterville; Thos. Irwin, Jerseyville; S. M. Reddish, Fieldon; R. R. Ward, Rosedale.

The Jersey County Farmers' Institute was organized in 1896. Institutes have been held at Jerseyville as follows: February 19-20, 1896, February 4-5, 1897. The last institute was held at Jerseyville February 4 and 5, 1897, under the following management: President, T. S. Chapman, Jerseyville; Secretary-Treasurer, J. W. Becker, Jerseyville; Executive Committee, W. H. Fulkerson, O. A. Snedeker, Spencer Wyckoff, E. A. Riehl.

The programme of the institute meetings held February 4 and 5, 1896, is as follows:

Thursday, February 4th—Morning session.

Opening, by the chairman; report of last institute, secretary; "Why Are We Here?" C. G. Winn, Griggsville.

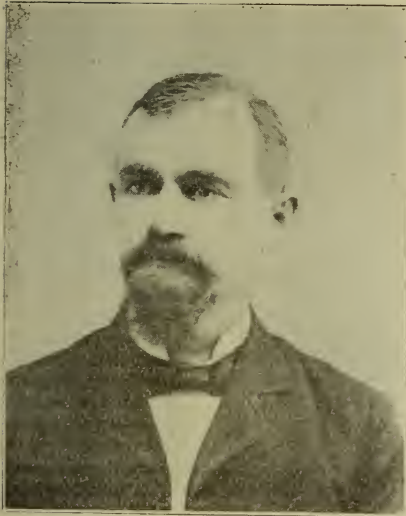
Afternoon session.

Vocal music, male quartette; "Weeds," by Prof. G. P. Clinton; Topic, Clover; "Its Value as Food," W. H. Bartlett, Delhi; "Its Value as a Fertilizer," Spencer Wyckoff, Delhi; "Its Commercial Value," D. Q. Trotter, Piassa; general discussion.

Evening session.

Music by Mandolin Club; "Then and Now, or Fifty Years of Farm Life," Maj. E. A. Giller, White Hall, Ill.; vocal music, male quartette; paper, "New England Farm Life and Farming," A. P. Grout, Winchester; music.

LaSALLE COUNTY FARMERS' INSTITUTE.



G. A. WILMARTH, President.

Music, Aeolian Quartette; Prayer; Reading, Papa and the Boys, Miss Grace June Parr, Rutland; Music, Voices From the Woods, Miss Effie Shaver, Ottawa; Paper, Rural Influences, Mrs. E. L. Gleason, Mendota; Violin Solo, Miss Maud Sanderson, Ottawa; Recitation, The Old Actor's Story, Miss Mabel Imus, Mendota; Music, Aeolian Quartette; Address, Eugene Davenport, Dean of Agricultural College University of Illinois.

Thursday, 10 a. m.

Music; Prayer; Paper, Sheep Husbandry, George Cadwell, Deer Park; Discussion, William Truman, Mendota; Query Box, in charge of E. Howland, Ottawa.

Thursday, 1:30 p. m.

Music; Prayer; Paper, Farmers' Mutual Insurance, Samuel Grove, Utica; Discussion, Henry Bowen, Seneca; Geo. D. Shaver, Rutland; Music, F. M. Higgins, Seneca; Paper, Swine Breeding, J. C. Shaw, Plattsville; Discussion, Wallace Libby, S. Ottawa; Paper, The Old and the New Way of Farming, E. Howland, Ottawa; Music, Miss May Hogan, Seneca; Paper, The Outlook of the Poultry Breeder; Discussion; Paper, Household Economy.

Thursday, 7:30 p. m.

Music, F. M. Higgins, Seneca; Prayer; Music, Elite Mandolin Club, Ottawa; Address, Hon. David Wood, Chicago, Editor Western Plowman and Ideal Farmer; Music, Miss May Hogan, Seneca; Paper, The Country Schools, U. J. Hoffman, Ottawa, Superintendent LaSalle County Schools; Discussion, Grant Conard, Ottawa; F. M. Higgins, Seneca; H. C. Nauman, Mendota; Music, Elite Mandolin Club, Ottawa; Paper, Dressed Meats as Food for Human Consumption, Dr. M. Wilson, Mendota; Discussion, Drs. Hoffman, of Ottawa, and Putney, of Seneca. Close.

This institute was a grand success, both in attendance and interest, the average daily attendance being two about thousand. The officers for 1898 are as follows: G. A. Wilmarth, Seneca, President; Chas. Dana, Waltham, vice president; Miss Emma Mudge, Peru, secretary; William Truman, Mendota, treasurer; G. D. Shaver, Ottawa; Hon. Sawyer, Streator, M. P. Trumbo, Ottawa; Alfred Hartshorn, LaSalle; Samuel Grove, Utica, executive committee.

The LaSalle County Farmers' Institute was organized September 21, 1895. Institutes were held January 29-30, 1896, and January 13-14, 1897. The second annual meeting, held at the opera house, Ottawa, Ill., January 13-14, 1897, was under the following management: President, G. A. Wilmarth, Seneca; vice president, A. C. Baldwin, Deer Park; secretary, Mrs. L. G. Chapman, Freedom; treasurer, A. F. Schoch, Ottawa. The following programme was carried out in full:

Wednesday, 10:30 a. m.

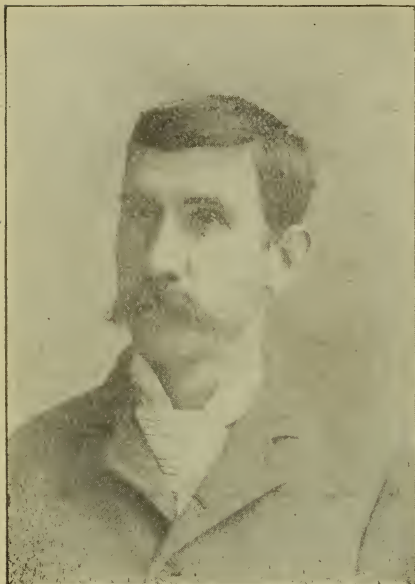
Music, America; Prayer; Welcome Address, Mayor L. W. Hess; Response, Hon. Geo. H. Madden, Mendota. Member State Board Agriculture; Paper, Horticulture, D. L. Carpenter, Seneca; Discussion, Mr. Waghorn, Marseilles.

Wednesday, 1:30 p. m.

Music; Prayer; Declamation, Clyde Butterfield, Marseilles; Paper, Dairying for Profit, or How to Make a Pound of Butter for 6 Cents, A. G. Judd, Dixon. Member State Dairymen's Association; Discussion, U. S. Ellsworth, Deer Park; A. C. Wyle, Utica; Charles Kember, Seneca; Recitation, Lucia Barber, Miler; Paper, Outlook for Horses, Oliver Wilson, Magnolia, Master Illinois State Grange; Discussion, W. E. Pritchard, S. Ottawa; Louis Rohrer, Sandwich; Music, W. F. Heath, Ottawa.

Wednesday, 7:30 p. m.

LAWRENCE COUNTY FARMERS' INSTITUTE.



W. E. NEAL, Secretary.

The Lawrence County Farmers' Institute was organized January 28, 1896. The first institute was held February 28 and 29, 1896; the second, January 27 and 28, 1897. The officers under whose management the last institute was held are as follows: President, James K. Dickirson; Treasurer, James Eaton; Secretary, W. E. Neal; Executive Committee, D. A. Watts, Sumner; J. F. Burt, Chauncey, Thomas Guttridge, Ruark; W. E. Finley, Bridgeport; Thomas England, Billet; A. D. Sprinkell, Allison, John Price, Russellville; Robert W. Kingsbury, Birds; P. W. Barnes, Lawrenceville. The program of the institute held January 27 and 28, 1897, at the court house in Lawrenceville, was as follows:

Wednesday, January 27.

Morning session.

Meeting called to order by the President; prayer, A. L. Greenlaw; address of welcome, Col. Foster; response, Hon. Robert Bell; music, Mandolin Club.

Afternoon session.

Music; prayer; paper, Orchards, Best Kinds and How to Care for Them, George N. Parker; discussion; music; Legislation, Ed S. Wilson; discussion.

Evening session.

Music, Mandolin Club; music, choir; Our Rural Schools, Prof. J. B. Stout; discussed by Prof. George Lackey; music.

Thursday, January 28, 1897.

Morning session.

Music, Mandolin Club; prayer, Elder Halton; paper, Baby Beef, Robt. W. Kingsbury; discussion; Clover as a Fertilizer, Daniel Berry; discussion.

Afternoon session.

Music; prayer; Stock Peas, Dr. J. C. Morris; discussion.

MADISON COUNTY FARMERS' INSTITUTE.

Farmers' Institutes have been held in this county as follows: April 11-13, 1893, at Edwardsville; January 9-11, 1894, at Highland; December 16 and 17, 1894, at Bathalto; December 10 and 11, 1895, at Edwardsville, and September 3 and 4, 1896, at Highland. The last meeting was under the following management: President, Louis A. Spies, St. Jacob, Vice-President, Frank Troeckler, Mitchell; Secretary, Lee S. Dorsey, Moro; John J. Mulloy, Alhambra; E. J. Jeffress, Edwardsville. The program of the meeting held at Lindenthal Park, Highland, Ill., September 3 and 4, 1896, is as follows:

Thursday.

Music; address of welcome, City Attorney J. P. Streuber; response, Hon. Louis A. Spies, Chairman Institute Committee; music.

Afternoon session.

Lecture, How to Make Money Raising Wheat at Present Prices, M. S. Link, Mitchell, Ill.; lecture, How to Keep Up and Restore Fertility of Soil, Joseph E. Miller, Turkey Hill Farm, St. Clair county; music.

Evening session.

Music; recitation, Miss Estella Spies, St. Jacob; song, Mannerchor Harmonie; lecture, How to Educate the Boy to Make Him Stay on the Farm, C. J. Lentwiler, Alhambra; lecture, How to Educate the Farmer Girl to Enable Her to Make Farm Life What it Should Be, Miss Cora Anderson St. Jacob.

Friday.

Lecture, Pure Food Bill (Oleo, filled cheese, etc.), Hon. J. M. Pearson, Godfrey.



L. A. SPIES, President.

MASON COUNTY FARMERS' INSTITUTE.



G. G. HOPPING, President.

The Mason County Farmers' Institute was organized in 1881. Institutes have been held on the following dates: December 17-18, 1891, December 22-23, 1892, January 17-19, 1894, January 18-19, 1895, January 29-30, 1896, and February 3-4, 1897. The last Institute, held at Easton, February 3-4, 1897, was under the management of the following officers: President, G. G. Hopping, Havana; secretary, S. F. Porter, Mason City. The following is the program carried out:

Wednesday, February 3, 1897. Morning session.

Reports of Officers of last year; Unfinished business.

Afternoon session.

Prayer; Election of Officers; Music; Recitation, Gertrude White, Forest City; Diversified Farming, S. F. Porter, Mason City; Discussion, E. J. Mell; Music, Laston Quartette; Paper, Fertilizers, Prof. Holden, Champaign; Discussion.

Evening session.

Music; Prayer; Practical Education, Rev. Harnley, Mason City; Discussion, Prof. Bollen, Havana; Music, Lucas Sisters.

Thursday, February 4, 1897. Morning session.

Prayer; Insurance, Mutual Plan, John McReynolds, Topeka; Discussion: Stock for the Farm, A. M. Caldwell, New Holland; Discussion.

MERCER COUNTY FARMERS' INSTITUTE.

The Mercer County Farmers' Institute was organized in 1889 and re-organized in 1892, and meetings have been held in Aledo January 20-21, 1892, January 10-11, also February 23-24, 1893, January 4-5, 1894, January 22-23, 1895, and February 5-6, 1896. The last Institute was held in the town hall, Viola, Ill., January 21-22, 1897, under the following management: President, Alvah Jay, Sunbeam; secretary, W. S. McCreight, Suez; executive committee, president and secretary, Leon McWhorter, J. M. Archer, both of Aledo, J. F. Holmes, Viola.

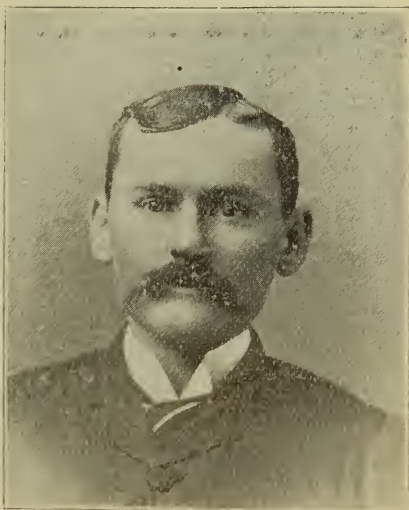
The program is as follows:

Thursday, January 21, 9:30 a. m.

Invocation, Rev. Ballew, Viola; Music; Address of Welcome, J. W. Terry, President Town Board; Response, J. F. Holmes, Viola; Music; Farmers' Institute, Its Objects and Aims, Rev. Ballew, Aledo; General Discussion; Music; Horticulture on the Farm, Robt. Pinkerton and L. R. Witherell; General Discussion.

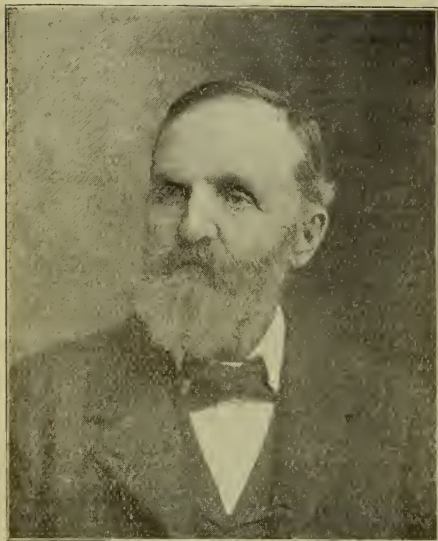
Afternoon session.

Music; The Farm Home and Literature, Paper by Henry Crosby, Viola; Discussion, led by P. M. Carnahan, Aledo; Music; Keeping our Boys and Girls on the Farm, Mrs. S. McHard, Aledo; Discussion, led by O. A. Bridgford, Joy.



W. S. MCCREIGHT, Secretary.

OGLE COUNTY FARMERS' INSTITUTE.



AMOS F. MOORE, President.

W. March, James Graham, James P. Wilson, John L. Scott, J. E. Sharp.

Thursday, February 18, 1897.

Morning session—10:30 o'clock.

Prayer, Rev. Forkel, Oregon. Address of welcome, Franc Bacon, Oregon. Response, Hon. James P. Wilson, Woosung. "Rotation of Farm Crops," Chas. W. Johnson, Grand Tour. Discussion. "Business Side of Farm Life," Dwight Herrick, Rochelle. Discussion.

Afternoon session—1:30 o'clock.

"Grafting, Budding and Care of Farm Orchards," J. L. Hartwell, Dixon. Discussion. "Small Fruit on Farm," illustrated, E. S. Fursman, El Paso. Discussion. Paper, Mrs. L. C. Chapman, Freedom. Address, P. C. Holden, Champaign.

Evening session—7:30 o'clock.

Music, Schiller Quartette. "Rural Influences," Mrs. E. L. Gleason, Mendota. Music. "Rural Free Mail Delivery," John M. Stahl, Chicago. Oration, Ralph C. March, Daysville. Music. "The Ideal Farmer," David W. Wood, Chicago. Music.

Friday, February 19.

Morning session—9 o'clock.

Prayer, Rev. Reed. Reorganization. "Red Polled Cattle," J. D. Piper, Forrester. Discussion. "Hard Roads and Cost of Construction," A. G. Judd, Dixon. Discussion. "Legislation Necessary for Encouragement of Hard Roads," Hon. J. F. Spaulding, Byron. Discussion. "Corn Culture and Its Commercial Products," E. S. Fursman, El Paso. Discussion.

Afternoon session—1 o'clock.

"Opportunities," J. M. Piper. Address, P. C. Holden. "The Beet as a Side Dish for Stock," A. W. Brayton, Mt. Morris. Discussion. "Hogs for Profit," A. J. Lovejoy, Roscoe. Discussion. "Corn Fodder," James Graham, Stillman Valley.

The Ogle County Farmers' Institute Association was organized at Oregon in the year 1888, with Charles Sammis, of Oregon, Chairman, and Charles Walkup, Secretary. The association has held an Institute meeting each year since its inception. Oregon, Polo, Mt. Morris and Rochelle each having had one or more meetings. These meetings have comprised four or more sessions each, and subjects pertaining to general farming, small fruit, education, organization, dairy, feed, roads, soil, fertilizer, insect life, domestic life, and various other questions of general interest, have been discussed. The association has reorganized each year, and Chas. W. Sammis, of Oregon; James P. Wilson, of Woosung; A. F. Moore, of Polo; Jacob Miller, of Mt. Morris, and John B. Mix, of Oregon, have each been chosen as presiding officer, and Chas. Walkup has been chosen Secretary at each succeeding meeting. These Institutes have been well attended by the more progressive farmers of the county, and an increased interest has been shown each year. The last meeting of the association was held at Oregon, under the auspices of the officers elect, viz.: President, A. F. Moore, Polo; Secretary, Chas. Walkup, Oregon; Executive Committee—John B. Mix, F.

WHITESIDE COUNTY FARMERS' INSTITUTE.



R. R. MURPHY, President.

Help in the Kitchen." Miss Beth Ramsay, Hume; "Our Poultry Interests," Mrs. Emma Groh, Dixon; W. W. Noyes, Prophetstown; Miss Mary McCauley, Hopkins, and J. S. Strickler, Sterling; music; recitation, Miss Mabel Worthington; "How Can Farm Life Be Made More Attractive?" Mrs. J. M. Golder, Rock Falls; Mrs. Thomas Diller, Sterling; Dr. Mary Mitchell, Clinton, Iowa; music; "An Ideal Farm," A. N. Abbott, Ustick; recitation, Miss Ella D. Wetherbee, Sterling; music.

Thursday forenoon, 9 o'clock.

Prayer, Rev. E. Brown, Sterling; report of committees; election of officers; general transaction of business; "The Road Problem: How shall our roads be constructed; general plan; material used; the merits of the cash and labor systems respectively," J. B. Gilbert, Jordan; G. F. Shuler, Sterling; C. A. Wetherbee, Sterling; T. H. Adams, Garden Plain; Wash Boyer, Mt. Pleasant; discussion to close at 10:30; twenty minute social; "What Fruits can the Whiteside county farmer profitably raise? culture of the same how and when to market?" Prof. M. R. Kelly, Morrison; John Byers, Albany; L. M. Dodd, Mt. Pleasant; R. L. McMoyl, Rock Falls; C. R. Powell, Sterling.

Thursday afternoon, 1:30 o'clock.

"How can the fertility of our lands be best preserved? how renewed?" D. N. Foster, Sterling; Herman Sturtz, Montmorency; Earl Elthorpe, Prophetstown; A. S. Brewer, Tampico; Edward Devine, Hahnman; Andrew Stanley, Geneseo; discussion to close at 2:30; fifteen minute social; "Hints on the rearing, care and preparation for sale of the following classes of horses: draft horse, roadster, horse of all work," J. H. Coolidge, Galesburg, Ill.; W. A. Sanborn, Sterling; George Richmond, Prophetstown, and Art Fletcher, Clyde; closing words by the president of the institute; song, "America," sung by the audience; adjournment.

The Whiteside County Farmers' Institute was organized at Morrison, Illinois, September 21, 1895. Institutes have been held in Morrison January 30-31, 1896, and in Sterling December 2-3, 1896. The last institute was under the following management: President, R. R. Murphy; Vice President, R. G. Hulett, Morrison; Treasurer, H. L. Ewing; Secretary, W. J. Johnston, Morrison; Executive committee, R. R. Murphy, Garden Plain; H. L. Ewing, L. M. Dodd, Chas. W. Mitchell, Wm. Bedell, A. S. Durward. The programme of the meeting held at Sterling December 2-3, 1896, is as follows:

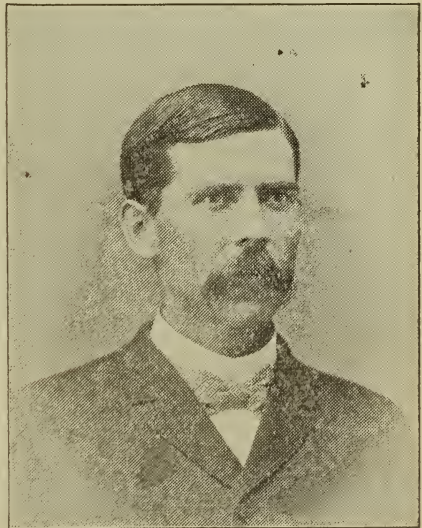
Prayer, Rev. Theodore Crowl, of Sterling; minutes of last meeting; "Is Wheat, in Northern Illinois, a Profitable Crop? If so, What Kind or Kinds Would You Recommend? The Proper Methods of Cultivating and Harvesting It"; discussion opened by George Goodenough, of Union Grove, and Stanley Fuller, of Portland.

Afternoon session opens at 1:30 p. m.

"How Shall We Manage the Products of the Cow in Order to Realize the Most Profit From Them?" N. P. Wilson, Jordan; Harmon E. Burr, Union Grove; John Bressler, Sterling; Fre Buell, Montmorency, and A. G. Judd, Dixon; discussion to close promptly at 3 o'clock; twenty minute social; "How Can the Rural Schools of Whiteside County Be Improved?" Mrs. Mary Talbott, Jordan; Miss Elizabeth E. Bush, Sterling; Alfred P. Reed, Hopkins, and Mrs. L. E. Rice, Lyndon; discussion closes at 4:20; appointment of committees.

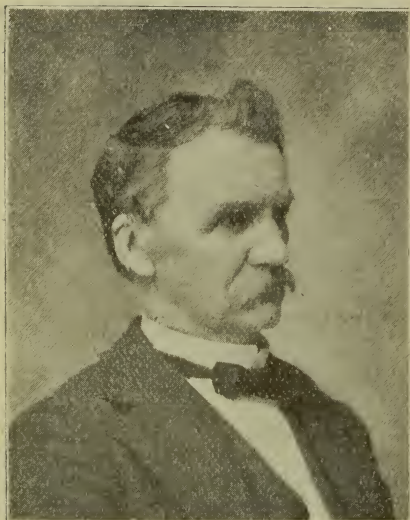
Evening session, 7:30.

Music; recitation, Miss Stella Birdsall, Sterling; "How to Secure and Retain Good Eggs," Mrs. Thomas Diller, Sterling; Dr. Mary



W. J. JOHNSON, Secretary.

WOODFORD COUNTY FARMERS' INSTITUTE.



E. S. FURSMAN, Secretary.

Evening session, 7:30 o'clock.

Overture, Mandolin Club; song, Eureka College Quartette; address, President J. H. Hardin, Eureka College; music, Mandolin Club.

Friday, January 15, 1897.

Morning session, 9:30 o'clock.

Prayer, Rev. D. R. Howe; Education of Farmers' Children, R. B. Dickinson, Eureka; Butter Making, Mrs. Rolla Marshall, Roanoke; discussion; Poultry Raising, Miller Purvis, Editor Farmers' Voice, Chicago; discussion; Road Improvement, Harvey Bullock, Eureka; discussion. Question Box.

Afternoon session, 1 o'clock.

Farming from a Physician's Standpoint, Dr. N. B. Crawford, Eureka; How to Feed for Best Effect, James R. Cooledge, Jr., Galesburg; discussion; Sorghum Culture for Syrup and Fodder, H. K. Smith, Mt. Palatine; discussion. Question Box. Adjourned.

The Woodford County Farmers' Institute was organized at El Paso, January 1, 1888. Institutes have been held at El Paso, in February, 1891; February, 1892; January, 1893; January, 1894; at Eureka, January 28 and 29, 1896, and January 14 and 15, 1897. The last meeting, held at G. A. R. Hall, Eureka, Illinois, January 14 and 15, 1897, was under the following management: President, Capt. W. M. Bullock; Secretary, E. S. Fursman; Treasurer, John M. Stonebraker.

The programme was as follows:

Thursday, January 14, 1897.

Morning session, 10 o'clock.

Organization; appointment of committees; election of officers; arrangements of exhibits; general conference.

Afternoon session, 1 o'clock.

Prayer, Rev. J. T. Sullivan; address of welcome, Mayor B. J. Radford; response, P. H. Davison, Yankeetown; song, quartette; Value of Farm Institutes, E. S. Fursman; Land Owners and Tenants, J. M. Davison, Eureka; discussion; Subsoil and Surface Cultivation, John Virgin, Fairbury; discussion. Question Box.

ADAMS COUNTY FARMERS' INSTITUTE.

The Adams County Institute was organized in 1887. Institutes have been held as follows: May 23 and 24 and November, 1890; October 9-10, 1891; May 27-28 and November 18-19, 1892, all at Camp Point; November 24-25, 1893 and October 26-27, 1894 at Golden; October 31 and November 1, 1895, at Plainville, and February 28-29, 1896 at Clayton, Ill. Hon. George W. Dean served as president and Mr. C. S. Booth served as secretary from 1887 to 1895 when Mr. S. N. Black, of Clayton, was elected president, J. A. Nevens, of Camp Point, secretary and J. C. Pearce, of Camp Point, treasurer.

The programme of the Adams County Farmers' Institute held at Bailey's Opera House, Camp Point, Ill., Friday and Saturday, March 12 and 13, 1897, under the last named officers is as follows:

Friday, March 12.

Prayer, Rev. O. Dilley; music; president's address, S. N. Black; The Financial Outlook, Chas. V. Gay, Camp Point; discussion opened by George W. Dean, Adams, Ill.; recitation, Miss Mary Swain; Farmer's Organizations, C. S. Booth, Camp Point; discussion, Robt. W. Hoke, Camp Point; music; Hygiene on the Farm, Dr. S. Henry, Camp Point; Music on the Farm, Scott Taylor, Golden, Ill.; County Exhibit at State Fair, Charles Shank, Clayton, Ill.; discussion, W. S. Stewart, Camp Point; music; the question box.

Friday evening, March 12.

Instrumental music; reading, Miss Nona Cate; song; address, The American Farmer, Hon. Chester A. Babcock, attorney, Quincy; music.

Saturday, March 13.

Music, violin, Miss Blanche Aull; Live Stock on the Farm, W. B. Marvel, Bowen, Ill.; discussion, Sam. Farlow, Camp Point; recitation, Miss Hattie Bartells, Camp Point; Education of the Children in the Rural Districts, Roland Hollock, Macomb, Ill.; discussion, Prof. C. P. Beale, Camp Point; music; Will it Pay to Grow Apples for Market? If so, Give Varieties and Treatment, Homer D. Brown, Hamilton, Ill.; discussion, Jos. Ivins, Camp Point; The Farm and the Road, Edw. Franks, Clayton, Ill.; discussion, Elmer Jefferson, Clayton, Ill.; music; question box.

Saturday, March 13.

Instrumental music; election of officers; recitation, Miss Hattie Henry, Camp Point; The Grasses and Clovers for Pasture and Hay, J. E. Simmonds, Clayton, Ill.; discussion, Wm. Meatheringham, Clayton; Patatoes, Varieties, Cultivation and Storing, J. B. Frisbie, Mendon; discussion, Jos. Hanks, Melrose; music; Keeping up the Fertility of the Soil, R. B. Starr, Mendon; discussion, J. F. Taylor, Camp Point; question box; music; adjournment.

BROWN COUNTY FARMERS' INSTITUTE.

The Brown County Farmers' Institute was organized at Mt. Sterling, August 15, 1896, with the following officers: President, J. B. Vandeventer; vice-president, O. A. Perry; secretary, H. A. Perry; treasurer, Robert Bloomfield, all of Mt. Sterling; executive committee, Chas. Dunlap, George E. Richardson, S. D. Nokes, W. B. Rigg, all of Mt. Sterling and Newton Lucas, of Mounds.

BUREAU COUNTY FARMERS' INSTITUTE.

The Bureau County Farmers' Institute was organized in 1897. The following officers were elected: President, Simon Elliott, Princeton; vice-president, D. P. Smith, Kasbeer; secretary, L. R. Bryant, Princeton; treasurer, E. A. Washburn, Princeton; executive committee, David Knight, Princeton; W. S. Martin, Lamaille; S. V. Saverhill, Tiskilwa; C. C. Pernir, Sheffield, N. B. Savan, Seatonville.

COLES COUNTY FARMERS' INSTITUTE.

The Coles County Farmers' Institute was organized in 1890. The last institute was held at the court house in Charleston, Ill., January 28-29, 1897, under the following management: President, George W. Brewer; secretary and treasurer, C. R. Doty.

The program rendered was as follows:

January 28, Morning session, 9:30.

Music; invocation, Rev. J. A. Piper; welcome address, Mayor Neal; response, President Geo. W. Brewer; election of officers.

Afternoon session, 1:30.

Music; Possibilities of an Acre, John B. Hill; What Shall the Farmer Do to Make the Balance on the right Side of the Ledger? W. G. Walker, LaFayette Craig.

January 29, morning session, 9:30.

Music; Practical Poultry Culture, Grant M. Curtis, Richard Cadle; Are Our Land Rentals Too High? T. N. Cofer, Joe Davis, John Snider; Farmers' Coöperative Insurance, W. H. Smith, A. T. Strange.

Afternoon session, 1:30.

Music; Mistakes in Farming, A. J. Funkhouser, Jas. T. Doty; Best Method of Disposing of Surplus Products of the Farm, Hon. W. M. Bines, F. D. Voris.

CARROLL COUNTY FARMERS' INSTITUTE.

This institute was organized November 3, 1891, with the following officers: Jacob Grossman, Lanark, President; W. R. Hostetter, Mt. Carroll, Secretary; E. T. Becker, Mt. Carroll, Treasurer. The first meeting was held in Mt. Carroll, December 15 and 16, 1891. Meetings have been held annually and sometimes semi-annually since. Institutes were held December 16 and 17, 1896, at Thomson, and January 29 and 30, 1897, at Lanark, under the management of the following officers: D. C. Busell, Milledgeville, President; C. Lamp, Lanark, Treasurer; W. R. Hostetter, Mt. Carroll, Secretary; Executive Committee, James Bennett, Isaac Gillespie, S. Bristol, W. J. Hay, E. T. E. Becker, Henry Lack, A. B. Hostetter, Jacob Grossman, J. L. Slick, T. A. Cotta, J. K. LaShelle, C. Shirley, N. Woodin, Joseph Fike. The programme of the last meeting was as follows:

Friday, January 29, 1897.

Opening exercises; *music; address, Science on the Farm, Prof. Wm. S. Wilson, Frances Shimer Academy, Mt. Carroll, Ill.; paper, Science in the Schools, Miss Nora Persons, Lanark High School; paper, Science in the

Home, Mrs. J. E. Laird, Lanark; ten minutes discussion, Mr. D. B. Ketterman, Lima Township; Mrs. Verna Beede, Salem Township; Mr. G. R. Morris, Rock Creek Township; general discussion, (5-minute speeches).

Evening session.

Music; prayer; music; addresses, President of Farmers' Institute, Hon. D. Busell, Milledgeville; President Carroll County Teachers' Association, Prof. J. H. Shirk, Milledgeville; music; recitation, Miss Vera Grossman; appointment of committees; address, Hon. Jonathan Piper, Chicago; miscellaneous business; recitation, Miss Harriet Redline; music; *music, conducted by the Lanark Ladies' Musical Club.

Saturday, January 30, 1897.

Opening exercises; music; paper, The Township Should Be One School District, County Superintendent Royal T. Morgan, DuPage county; ten minute discussions, Prof. B. F. Baker, Chadwick Schools; Mr. Dan Mackay, Salem Township; Mrs. R. Goehering, York; Mr. T. N. Fleming, Milledgeville; Mr. W. W. Gillespie, Washington; Mr. Conrad Lamp, Rock Creek Township; Mr. J. E. Zugschwerdt, Fair Haven Township; Prof. O. P. Cowen, Thomson Schools; general discussion, (5-minute speeches).

Evening session.

Music; recitation, Lee Ella Brown; (a) paper, The Study of Civil Government in the Schools, Superintendent M. Callie, Mt. Carroll Schools; (b) paper, The Study of Civil Government in the Homes, Mrs. Aurelia Wingert, Mt. Carroll; (c) paper, The Study of Civil Government in Special Organizations, Mr. W. Harrison Barnes, Florence, Ill.; music; ten-minute discussions under (a), Miss Isabelle Hunter, Secretary Board of Education, Mt. Carroll; Mr. A. P. Sword, Hickory Grove School; Prof. S. B. Shiley, Shannon Schools; ten-minute discussions under (b), Supt. B. F. Hendricks, Savanna Schools; Mr. A. H. Hawk, Lanark Township; Mr. G. C. Slick, Freedom Township; ten-minute discussions under (c), Hon. G. L. Hoffman, Mt. Carroll; Hon. L. T. Bray, Lanark; Rev. Z. T. Livengood, Lanark; report of committees.

COLES COUNTY FARMERS' INSTITUTE.

The Coles County Farmers' Institute was organized in 1890. The last institute was held in Charleston in March, 1895, under the following management: President, Geo. W. Brown; Vice-President, C. R. Doty; Secretary and Treasurer, J. P. Jones, all of Charleston; Executive Committee, A. N. Walden, T. C. L. Endsley, Wm. Rosebrough, and W. G. Walker, all of Charleston, and L. Craig, of Bushton.

COOK COUNTY FARMERS' INSTITUTE.

The last institute was held March 24 and 25, 1897, at the hall of the Live Stock Exchange, Union Stock Yards, and March 26, 1897, at Willard Hall, Woman's Temple, Chicago. This meeting was under the following management: President, Jonathan Periam, Secretary and Treasurer, Chas. Lindeman; Executive Committee, Chas. H. Dolton, Andrew Dunning, W. R. Goodwin.

The programme of this meeting was as follows:

Wednesday, 9 o'clock a. m.

Report of the Superintendent; organization of institute; election of permanent officers; appointment of committees; address by President, Secretary-Treasurer, Superintendent and others; adjournment for social intercourse and acquaintance.

Afternoon session, 2 o'clock.

Discussion will be in order after each paper.

Music, Miss Winona Kerney, Chicago; address, The Business End of Farming, S. W. Allerton, Chicago; address, The Agricultural Press and the Farmers' Art, David Ward Wood, Editor Western Plowman; address, The American Sheep Industry, W. W. Burch, Editor American Sheep Breeder; address, Veterinary Science in its Relation to the Farmer, Prof. W. H. Baker, Chicago Veterinary College; recitation, Mr. Samuel Hoffheimer; solo, Miss Mildred Fletcher; music, Miss Winona Kerney; adjournment.

Thursday, 10 o'clock a. m.

Address, Bee-keeping in Cities and the Little Home Green House, Prof. S. E. Armstrong, member Board of Trustees University of Illinois, and Principal Englewood High School; address, Cook County Dairy Interests. How Cleanliness and Skill Win, Ray Lespinasse; address, Market and Kitchen Gardening, Jonathan Periam, Chicago; solo, Mr. Fred J. Erfurt, Chicago; adjournment.

Afternoon session, 2 o'clock.

Music, Miss Winona Kerney, Chicago; address, Value of Industrial Education, Prof. J. E. Armstrong, Chicago; address, Laying Out, Ornamenting and Planting Suburban Home Grounds, John Thorpe, F. R. H. S., Chief of Floriculture, Columbian Exposition; reading, Miss Marie Schlachter; address, Soil Fertilization and Cheapest Method of Producing, Prof. J. F. Elsom, New Albany, Ind; address, Live Stock Interests and the Farmer, Prof. Eugene Davenport, Dean of College of Agriculture, University of Illinois, Champaign; music, Miss Winona Kerney; adjournment.

Friday, 10 o'clock a. m.

(Willard Hall, Woman's Temple, Corner Monroe and LaSalle Streets.)

Selection, piano, Miss Winona Kerney; solo, Miss Olive Rongen; address, Rain and its Causes, Geo. E. Plumb, A.B., L.L.D., of Chicago Record; music, Fred J. Erfurt; address, Trees Best Adapted for City Planting, Edwin A. Kanst, Washington Park, Ill.; adjournment.

Afternoon session, 2 o'clock.

Music, Miss Winona Kerney; Address, Insects Attacking Shade Trees, Prof. S. A. Forbes, Ph.D., State Entomologist, University of Illinois; address, Water and Vegetation, T. J. Burrill, Ph.D., Professor of Botany and Horticulture, University of Illinois; address, Production of Pure Milk, E. H. Farrington, Professor of Dairy Husbandry, University of Wisconsin; solo, Miss Olive Rongen; address, The Future of the Live Stock Industry of the United States, Bernard F. Snow, Statistician, Orange Judd Farmer; music, Miss Winona Kerney; adjournment.

Evening session, 8 o'clock.

Selection, piano, Miss Winona Kerney; reading, The Village Gossip, (Kate Douglas Wiggin), Julie Carol-Rosaire; reading, Our Friends the Birds, Miss Ada C. Sweet; discussion, opened by Jonathan Periam; reading, Dick and the Marchioness, (From Old Curiosity Shop), Julie Carol-Rosaire; Relation of the Weather Bureau to the Farming Industry, Prof. E. B. Garriott in charge; solo, Miss Olive Rongen; selection, piano, Miss Winona Kerney.

The officers for the ensuing year are: President, Jonathan Periam, 526 Englewood avenue, Chicago; Secretary and Treasurer, Chas. J. Lindeman, 1432 Diversey Boulevard, Chicago; Executive Committee, Chas. H. Dolton, Andrew Dunning, W. R. Goodwin.

DEKALB COUNTY FARMERS' INSTITUTE.

The DeKalb County Farmers' Institute was organized in 1889. Institutes have been held as follows: March 7, 1890, at DeKalb; January 4-5, 1891, at Sycamore; March 2-3, 1892, at DeKalb; January 25-26, 1893, at Sycamore. The officers of the Institute are as follows: President, George H. Gurler, DeKalb; vice president, E. P. Safford, Sycamore; secretary and treasurer, Edwin Waite, Sycamore; executive committee, Henry Wood, Sycamore; Henry B. Gurler, DeKalb; James L. Hamilton, Malta; H. M. Coleman and F. H. Crane, both of Sycamore.

DOUGLAS COUNTY FARMERS' INSTITUTE.

The Douglas County Farmers' Institute was organized, November 15, 1895, Tuscola under the following named officers: President, William Iles, Carmago; vice-president, John C. Walker; secretary, Carroll C. Jones; treasurer, George Callaway, the three last named gentlemen of Tuscola.

EFFINGHAM COUNTY FARMERS' INSTITUTE.

The Effingham County Farmers' Institute was organized February 23, 1896. The first meeting was held at Effingham, March 19-20, 1895, under the following officers: President, A. D. McCallen, secretary, Wm. Dyke, treasurer, Slocum Harvey.

The officers elected for the ensuing year were as follows: President, A. D. McCallen; vice-president, T. B. Rinehart; secretary and treasurer, Wm. Dyke.

FORD COUNTY FARMERS' INSTITUTE.

The Ford County Farmers' Institute was organized in 1890. Institutes have been held as follows: Eighteen ninety. 1891 and 1893 at Gibson City, 1894 at Paxton, and January 21-22, 1897 at Sibley, Illinois. The last named was under the following management: President, John A. Scott, Kempton; secretary, V. G. Way, Proctor; treasurer, Fred Johnson, Paxton; executive committee, D. E. Alford, E. Kerns, J. R. Tallman.

The program for the institute held at Sullivant, Town Hall, Sibley, Ill., January 21-22, 1897, is as follows:

Thursday, January 21, 1897.

Morning session 10 o'clock.

Prayer, Rev. J. E. Taylor; music; address of welcome, Swen Anderson; Reply, W. A. Hutchinson, of Clarence, coroner of Ford county; president's annual address, Hon. John A. Scott; appointment of committee on organization and election.

Afternoon session, 1:15 o'clock.

Duett, Miss Minnie Beagley, Miss Hayden; Summer Seeding of Clover as an Incidental Crop, W. A. McKeever, Gibson City; discussion, led by Hon. John Virgin, of Fairbury, and Wm. Watts, of Kempton; Woman on the Farm, Mrs. P. Carroll, of Melvin; general discussion by all ladies present.

First evening.

Song, quartette; prayer, Rev. J. E. Taylor; song, School No. 4; song, quartette; address, Prof. Bloom; song duett, Miss Altha and Irving Alford;

reading, prize essay, Miss Nettie Jordan; reading, prize essay, Master Ralph Speedie; dialogue, Sibley Schools; song, quartette.

Friday, January 22, 1897.

Morning session, 10 o'clock.

Prayer; Brains on the Farm, F. W. Beardsley, Gibson City; discussion, led by S. J. LeFevre, Gibson City, and E. S. Fursman, El Paso; report of committee on awards; Rearing and Marketing Poultry, W. C. Mottier, of Gibson; discussion, led by W. J. Huston, of Cropsey, and G. T. Kinsey, of Paxton.

Second evening, 7:30 o'clock.

Song, quartette; select reading, Mrs. Effie Hadlieka; address, Rev. J. E. Taylor; song, School No. 4; Recitation, Miss Hattie Beagley; song, Sibley Schools; dialogue, School No. 4; song, quartette.

Afternoon session, 1:15 o'clock.

Solo, Miss Minnie Beagley; Horticulture on the Farm, Hon. E. S. Fursman, of El Paso; discussion led by H. Diers, of Sibley, and F. Fulton, of Gibson; Potatoes, John Miner, of Guthrie; discussion, led by A. J. Pool, of Clarence, and C. Jennings, of Piper City.

FRANKLIN COUNTY FARMERS' INSTITUTE.

An institute was held at the Opera House, Benton Illinois, March 18-19, 1897. It was under the management of the following officers: President, Charles Dixon; secretary, Wm. Moore.

The following program was rendered:

Song, choir; prayer, Rev. H. H. Wallace; welcome address, Mayor; How to Keep Up Our Highways, M. P. Clayton, M. C. Addleberg, J. N. Welch; Stock Peas, Their Uses and Culture, Dr. Z. Hickman, James Wilderman, John Kidwell, Jr.; Raising Stock for a Profit, Dr. Edward Richeson, John W. Hill, W. H. Thomas; Orchard and Small Fruit Culture, W. H. Carner, Moses Arterberry, C. M. Dixon, W. H. Dorris; Marketing Fruits and Vegetables, Wm. Hutcheson, C. M. Dixon, Moses Jordan, J. M. Vancil; Castor Bean Culture, J. B. Whittington, George Huth, R. D. Kirkpatrick; Culture of Grasses for Market, Feed and Pasture, Reed Auten, W. W. Dorris, W. H. Davis; Poultry Raising, Wm. Baxter, Wm. Reumler, John Vaughn; Fighting the Drouth, T. S. White, M. P. Clayton, J. M. Vancil, J. Marshall Jones; Feeding the Soil to keep up the fertility, Napoleon Payne, C. Moore, George Young; How to Raise and Keep Sweet Potatoes, Ed. McCollum, John B. Moore, Jeffery Dillon; Our Agricultural Fairs, S. W. Swain, A. M. Brownlee, C. C. Payne; How to Keep a Dairy for Profit, M. R. Holcomb, John Mulkey, Wm. Hutchison, Z. Hickman.

A premium was given for the best essay on each of the following subjects: Gardening, Poultry Raising, Butter Making, Fruit Growing, Castor Bean Culture, Growing and Curing Clover and the Best Method of Building up Poor Land.

FULTON COUNTY FARMERS' INSTITUTE.

The Fulton County Farmers' Institute was organized November 30, 1895. The first institute was held December 27, 1895 at Avon, Ill., by the following named officers: President James Carr; Vice-President, George Hatch; Secretary, N. O. Curry, Treasurer, Wm. H. Rose, all of Avon; Executive Committee, George Shunkle, John Roth, Howard Rose, A. E. Hatch and Jesse Johnson, all of Avon.

GALLATIN COUNTY FARMERS' INSTITUTE.

The Gallatin County Farmers' Institute was held in the court house at Shawneetown, Tuesday and Wednesday, February 18 and 19, 1896, under the following officers: President, R. E. Sawlers, Equality; Vice-President, John McGehee; Secretary, George Hanlon; Treasurer, Wm. A. Peoples, all of Shawneetown; Executive Committee, Rev. R. M. Davis, Omaha; James B. Hale, Cottonwood; B. Temple, Equality; M. Doherty and Charles Carroll, of Shawneetown. The next meeting was appointed for Shawneetown under the above management.

HANCOCK COUNTY FARMERS' INSTITUTE.

The Hancock County Farmers' Institute was organized in 1887. One and two meetings have been held each year since 1887. The records show that the first meeting was held December 22 and 23, 1887, at Carthage. Since then meetings were held January 18 and 19, 1893, at Carthage; November 16 and 17, 1894, at Carthage; December 20, 1894, at Hamilton; February 1 and 2, 1894, at Bowen; December 13 and 14, 1895, at Carthage; February 5 and 6, at La Harpe, and December 16-18, 1896, at Carthage.

At the last meeting held at Carthage, December 16, 17 and 18, 1896, the following program was rendered:

Wednesday, December 16.

Morning session, 10 o'clock.

President's address; The Jersey Cow on the Farm, C. N. Dennis, Hamilton; Government Agricultural Reports and Their Relation to the Farmer, G. W. Capron, Carthage.

Afternoon session, 1:30 o'clock.

What Can the Farmer Do to Gain a Reasonable Compensation for His Labor, C. M. McMillan, Denver; Does the Farm Pay, Prof. I. W. Cassell, LaHarpe; How Can We Best Protect Our Forests and Birds, L. B. Clark, Elvaston.

Evening session, 7:30 o'clock. Address.

Thursday, December 17.

Morning session, 9 o'clock.

The Hog, A. J. Lovejoy, Roseoe, Ill.; The Future Outlook for the Farm, J. C. Grover, Quincy; The Roadster Horse, Blood Lines and Climatic Outcrosses Considered, Dr. E. M. Robbins, Carthage. Each paper was subject to discussion.

Afternoon session, 1:30 o'clock.

Notes on Things Seen During the Year, C. G. Winn, Griggsville, Ill.; Effect of Stock on Scion, B. O. Curtis, Paris, Ill.; Winter Storage of Fruits and Vegetables, Hon. H. M. Dunlap, Secretary State Society, Savoy, Ill.

Evening session, 7:30 o'clock.

Music; Trees and Tree Planting, Dr. T. J. Burrill, Professor of Botany and Horticulture, University of Illinois, Champaign, Ill.; Among the Flowers, Mrs. D. Pennock, Carthage.

Friday, December 18.

Morning session, 9 o'clock.

Opening with prayer; Why We Cultivate, H. L. Doan, Jacksonville, Ill.; Advancement in Horticulture During the Year, Prof. J. C. Whiten, Columbia, Mo.; Revision of the Fruit List for Central Illinois, the Society.

Afternoon session, 1:30 o'clock.

Election of officers; also deciding on time and date of next annual meeting; Open the Windows, Mrs. Hattie Hazen, Hamilton. The following questions were offered for discussion: 1. Pruning, when and how? 2. Is tiling advantageous to an orchard? 3. Have we paid enough attention to peach growing in Central Illinois? 4. What new implements are worthy of notice? 5. Should pear trees be pruned? 6. What variety of raspberry would you plant? 7. What varieties of pears are most free from blight. 8. Subsoiling, is it of advantage, and at what time, and how in fruit and orchard growing?

HENRY COUNTY FARMERS' INSTITUTE.

The Henry County Farmers' Institute was organized in October, 1891. Institutes have been held February 14 and 15, 1892; February 15 and 16, 1893, both at Cambridge; February 6 and 7, 1894, at Galva; Jan. 22 and 23, 1895, and February 18 and 19, 1896, at Cambridge, and the last meeting held January 26 and 27, 1897, at Geneseo, Ill. This meeting was under the auspices of the following officers: President, Frank S. Melvin; Vice-President, W. W. Cole; Treasurer, J. P. Fox; Secretary, H. M. Gilbert; all of Geneseo.

The following program was rendered:

Tuesday, January 26.

Reports of township, Vice-Presidents; appointments of committees on organization; Institute Work, E. L. Fursman, El Paso, Ill.; Ensilage and Silos, M. M. Nash, Osco; discussion; Farm Economy, W. W. Warner, Warner, Ill.; discussion; Farm Buildings and Conveniences, Geo. B. Buck, Sunny Hill; discussion.

Evening session.

Music, Geneseo Q. Q. Quartette; address of welcome, H. L. Kiner, Geneseo; response, President F. S. Melvin, Geneseo; paper, Our Homes, Mrs. I. G. Heaps, Kewanee; recitation, Mortgage on the Farm, F. E. Richmond, Geneseo; music, Q. Q. Quartette; address, Hon. W. W. Warner; music, Q. Q. Quartette.

Wednesday, January 27.

Home Mutual Insurance, John N. Morgan, Galva; discussion; Tiling, Mac McKillop, Lynn Center; discussion; Small Fruit Culture, Will Ringle, Osco, E. S. Fursman, El Paso, Ill.; discussion.

Afternoon session.

Beef Cattle, D. L. Keleher, Orion; discussion; Farming for Profit, W. R. Tracy, New Windsor; discussion; Roads and Bridges, F. E. Richmond, Geneseo; discussion; Poultry, Fred Schureman, Geneseo; discussion.

Galva was selected as the place for holding the next institute, and the following officers were elected for the ensuing year: President, John N. Morgan; Vice-President, Lloyd Z. Jones; Secretary, Mr. Hunter; Treasurer, H. A. Calhoun, all of Galva.

JASPER COUNTY FARMERS' INSTITUTE.

Jasper County Farmers' Institute was organized in December, 1895, and the first institute was held at the court house in Newton, January 30-31, 1896. The last meeting was held at the same place January 26-27, 1897, in connection with the Congressional Institute and was under the following management: President, W. C. Gilson, Lis; vice-president, A. H. Beals, Newton; secretary, W. R. Carrico, Newton; treasurer, J. J. Kinsel, Newton; executive committee, G. H. Larrabee, Hunt; J. P. Warren, Rose Hill, George Obert, Bogota; M. McMurray, Newton, and Juff Cummins, Sr., Rose Hill.

The program of the institute held January 26-27, 1897, at Newton is as follows:

Tuesday, January 26, 10 o'clock.

Called to order by President W. C. Gilson; prayer, by J. W. Honey; paper, on Poultry Raising, by Mrs. S. Rose Carr; discussed, by S. H. Pile, J. M. Geddes and J. W. Honey; Fruit Growing on the Farm, by J. W. Honey; discussed by S. H. Pile, W. R. Carrico, H. H. Sinnette, J. P. Warren, G. S. Freeman, J. M. Geddes and Mrs. S. Rose Carr; on motion of Jas. P. Warren, a committee of three were appointed on resolutions; Benefit of Farmers' Institutes, by S. H. Pile; discussed, by James P. Warren; Rotation in Farming, by Milt Brooks; discussed, by J. M. Geddes; institute adjourned to meet on Wednesday.

Wednesday, 10 o'clock a. m.

Institute called to order by President W. C. Gilson; prayer, by J. M. Geddes; Effects of Grasses on the Fertility of the Soil; discussed, by A. M. List, James P. Warren and J. M. Geddes; Drainage, discussed by A. M. List, James P. Warren, W. C. Gilson and J. M. Geddes; Horse Raising, by A. H. Beals, Robert Cummins, Dr. J. H. Maxwell and W. R. Carrico.

Afternoon session.

Cattle Raising and Feeding, discussed, by W. R. Carrico, G. S. Freeman and Frank Dallmier; Hog Raising, paper by R. H. Vanderhoof.

It was decided to hold institutes twice a year, the next meeting to be held the last Thursday and Friday in October.

The officers elected for the ensuing year are as follows: President, W. C. Gilson; vice-president, A. H. Beals, secretary, W. R. Carrico, treasurer, J. J. Kinsel; executive committee, James P. Warren, R. H. Vanderhoof, Robert Cummins, G. S. Freeman, S. H. Larrabee.

JO DAVIESS COUNTY FARMERS' INSTITUTE.

Farmers' Institutes have been held in Jo Daviess county as follows: In 1891, at Warren; 1892, at Hanovers; 1893, at Stockton; February 8-9, 1894, at Galena; February 8-9, 1895, at Galena, and February 25-26, 1897, at Warren.

The last institute, held at Warren was under the management of G. W. Pepoon, president and S. A. Clark, secretary.

The following is a brief outline of the program:

Address of welcome by Dr. A. F. Buckman; response, G. W. Pepoon; music was furnished during the meeting by a quartette consisting of Messrs. Jas. W. Rowe, O. H. Baldwin, Jas. R. Spafford and W. C. Smith; recitation, Miss Bernice Ballard.

The following papers were read:

Cattle Feeding, Geo. W. Curtiss; Potato Culture, S. H. McEathron; Horse Raising, W. S. Hicks; Tobacco Culture, George Stock; Fruit Growing, J. V. Cotta; Fruit on the Farm, A. F. Moore; Sanitation of the Farm, Dr. Hilliard; Free Text Books for Public Schools, Prof. W. C. Smith; Corn Cultivation, G. W. Pepoon; an address was given by Prof. A. W. Burr, of Beloit College; discussions were held on the various subjects presented.

The officers elected for the ensuing year are as follows: President, G. W. Pepoon; secretary, S. A. Clark; vice-presidents, John Dallyn, Galena; W. J. Akins, Warren; Mrs. A. A. Simmons, Green Vale; C. A. Watson, Apple River; F. Marks, Stockton; John C. McKenzie, Elizabeth; O. Schoonhard, Scales Mound; Freeman Sawfer, Ward's Grove; W. H. Puckett, Nora.

JOHNSON COUNTY FARMERS' INSTITUTE.

The Johnson County Farmers' Institute was organized January 22, 1891. Institutes have been held in Vienna, in 1891, 1892, 1893, 1894, and 1895. The last institute, held at Vienna, September 27 and 28, 1895, was under the following officers: President, W. S. Wymore; secretary, W. C. Simpson, treasurer, J. W. Flemming, all of Vienna; executive committee, R. Reddin, C. L. Westman, W. A. Looney, all of Vienna.

KANKAKEE COUNTY FARMERS' INSTITUTE.

The Kankakee County Farmers' Institute was organized in 1891. Institutes have been held in Kankakee in 1891, 1892 and 1893 and in Momence in 1894. The officers of the institute are as follows: President, T. C. Schobery, Union Hill; vice-president, Wm. Cooper; secretary, Len Small; treasurer, A. J. Byrnes, three last of Kankakee; executive committee, Fred Mann and Lon Hay, both of Kankakee; L. S. McKinstry, Momence; O. W. Barnard, Manteno, and Azariah Buck, Hesseher.

KENDALL COUNTY FARMERS' INSTITUTE.

The Kendall County Farmers' Institute was organized August 15, 1895, at Yorkville. The last institute was held at Yorkville January 20 21, 1897, under the following management: President, W. T. Linn, Yorkville; vice-president, M. A. Skinner, Plattville; secretary, R. A. McClelland, Yorkville; treasurer, Lewis Christensen, Plattville; executive committee, A. E. Mayer, Millbrook; H. P. Barnes, Bristol; Myron Warmley, Oswego; John Murphy, Kendall; Charles Pope, Yorkville.

The program of the last meeting is as follows:

Wednesday, January 20, at 10:30 a. m.

Opening exercises, calling to order; president's address, W. T. Linn; adjourn for dinner.

Wednesday afternoon, 1:30.

Farmers' Institute, John R. Marshall; Care and Cultivation of Farm Lands, A. D. Havenhill, of Fox; The Dairy, E. J. W. Dietz, of Chicago; Truck Farming, George Mewhirter of Bristol; Sheep Husbandry, A. Ruland.

Thursday, January 21, 10:30 a. m.

Beef Culture, J. C. Bertram of Bristol; Public Highways, E. A. Myers of Millbrook.

Afternoon, 1:30.

General discussion; resolutions; election of officers.

The following officers were elected for the ensuing year: President, A. D. Havenhill, Fox; secretary, R. A. McClelland, Yorkville.

KNOX COUNTY FARMERS' INSTITUTE.

The Knox County Farmers' Institute was organized in 1890. Institutes have been held in Galesburg in January, 1890, 1891, 1892, 1893, 1894, February 5-7, 1895, and February 10-12, 1897. The last meeting was held under

the auspices of the following officers: President, J. H. Coolidge, Jr.; Secretary, O. L. Campbell; Treasurer, H. M. Sisson; Executive Committee, Geo. W. Gale, J. H. Coolidge, E. H. Goldsmith, William Robson.

The programme of the last institute held in Galesburg, February 10, 11 and 12, 1897, is as follows:

Wednesday, February 10.—Morning session.

Music, in charge of John Coolidge; prayer, Rev. W. H. Geistweit; address of welcome, Hon. J. J. Tunnickliff, Mayor; response, J. H. Coolidge, President of the Institute; Farmers' Institutes, Hon. F. M. Palmer, President of the State Farmers' Institute; report of district delegates, (each delegate was asked to answer the following three questions): 1. How shall we proceed to stimulate the interest and coöperation of Farmers in Institute Work? 2. In what way may we bring out the fullest discussion of the questions coming before the Institute? 3. Do you think it is desirable to appoint committees to investigate, in special lines of interest, and report results to the following meeting of the Institute? discussion.

Afternoon session.

Music; Good Roads, Hon. S. T. K. Prime, Dwight, Ill. discussion; A Food Ration for Man, Mrs. Henry M. Dunlap, Savoy, Ill.; The Sugar Beet, Hon. B. F. Arnold.

Thursday, February 11.—Morning session.

Music; prayer, Rev. S. B. Moore; Cheapest Milk Production, or How to Make Butter at a Cost of 6 Cents per Pound, A. G. Judd, Dixon; discussion.

Afternoon session.

Music; Beef Cattle, The Typical Form and How to Produce It, Hon. LaFayette Funk, Shirley, Ill.; discussion; recitation, Albert Humphrey; Entomology: Injury to Crops by Insects, Hon. S. A. Forbes, State Entomologist; discussion.

Friday, February 12.—Morning session.

Music; prayer, Rev. N. G. Lyons; election of officers; Disposition of Crops, E. S. Fursman, El Paso, Ill.; discussion.

Afternoon session.

Music; Legislation for Farmers, Hon. F. A. Murdoch, Oneida, Ill.; Benefits of Education to Farmers, Dr. J. H. Finley, President of Knox College.

LIVINGSTON COUNTY FARMERS' INSTITUTE.

The last annual meeting of the Livingston County Farmers' Institute was held at the opera house, Fairbury, Ill., February 3 and 4, 1897, by the following officers: President, John Virgin; Secretary, O. S. Westervelt; Treasurer, A. H. Remington; Executive Committee, the three above, R. C. Straight and S. M. Barnes. The following programme was rendered:

Wednesday, February 3, 1897.

Morning session.

Entries and arrangement of exhibits.

Afternoon session, 1:30 o'clock.

Prayer, Rev. W. L. Riley; Brains on the Farm, F. W. Beardsley, Gibson City; general discussion; How to Feed With Best Results, or What is a Ration, James R. Coledge, Jr., Galesburg; discussion. V. G. Way, Proctor; M. M. Spence, Fairbury.

Evening session, 7:30 o'clock.

Chorus, Fairbury High School; prayer, Rev. E. S. Wilson; Women on the Farm, or the Difference Between Today and the Day of our Mothers, Mrs.

P. Carrol, Melvin; vocal solo, Miss Myrtle Stafford; reading, Virginia, (by Lord McCauley), Miss Alta Virgin; chorus, Fairbury High School; address, Education as Related to Farm Life, Mayor B. J. Radford, Eureka.

Thursday, February 4, 1897.

Morning session, 10 o'clock.

Small Fruit on the Farm, E. S. Fursman, El Paso; questions and discussions by the audience; Method in Farming, J. N. Boudourant, Paxton; discussion invited.

Afternoon session, 1:30 o'clock.

Poultry raising, Its Magnitude and Profits, Miller Purvis, Editor Farmers' Voice, Chicago; Mr. Purvis invites discussion; ask him questions; reading, A Setting Hen, (Anonymous), Miss Alta Virgin; The Tenant Farmer, J. B. Foley, Gibson City; discussion.

LOGAN COUNTY FARMERS' INSTITUTE.

The Logan County Farmers' Institute was reorganized at Lincoln, December 28, 1896. Institutes have been held at Lincoln in 1888, 1889, 1890, 1896 and January 22-23, 1897. The officers under whose management the last meeting was held are: President, Hon. George W. Wendall, New Holland; first vice-president, Wm. Evans, Lincoln; secretary, Wm. Fogarty, Jr., Lincoln; assistant secretary, J. W. Jones, Lincoln; treasurer, A. B. Nicholson, Lincoln.

The program of the meeting held in Lincoln, January 22-23, 1897, is as follows:

Friday, January 22.

Music, Asylum Band; address, Hon. R. J. Oglesby; Round Table Talk, Rural Mail Delivery, conducted by William Evans; election of officers.

Saturday, January 23.

Address, Water and Vegetation, by Prof. T. J. Burrill, of State University, Champaign; music, Hanger Bros.; address, The Farmer in History, Prof. T. B. Williams, principal New Holland School; music, mandolin club of Lincoln University; address, Shall the Farmers Feed Cattle or Not, and Why? Hon. Jonathan Merriam.

Some excellent premiums were offered by the business men of Lincoln for the exhibits of grain, fruit, vegetables, etc.

MACON COUNTY FARMERS' INSTITUTE.

The Macon County Farmers' Institute was organized December 13, 1895 at Decatur. Two institutes have been held at Decatur, January 29-30, 1896 and February 9-11, 1897. The last institute was under the following management: President, W. H. Bean, Blue Mound; vice-president, E. R. Moffett, Boody; secretary, C. A. Thrift, Forsyth; treasurer, C. H. Scott, Mt. Zion; executive committee, Frank Minshead, Harriston; David Weilepp, Maroa; J. W. Walker, Oakley, Bering Burrows, Long Creek; S. C. Davis, Long Creek; J. B. Henry, Mt. Zion.

The program of the meeting held at Decatur, February 9-12, 1897 is as follows:

First day, afternoon session, 1:30 o'clock.

Tuesday, February 9, 1897.

Prayer, Rev. W. H. Penhallegan; song; reading of the minutes of previous meeting by the secretary, C. A. Thrift; president's address, W. H. Bean;

song; general discussion, subject, What are the Most Profitable Crops in Diversified Farming? led by Hon. W. T. Moffett.

Second day, morning session, 10 o'clock.

Wednesday, February 10, 1897.

Prayer, Rev. D. F. Howe; song; general discussion, subject, Farm Management, led by the president, Wm. H. Bean; Fences, R. M. Bell; How to Make Money Raising Poultry, Mrs. R. Judy; song.

Afternoon session, 1:30 o'clock.

Song; Insects Destructive of Agriculture, F. J. Jack; Profitable Horse Raising, J. F. Reid, Veterinarian; Township High Schools, president, John W. Cook, Normal University; song.

Evening session, 7:30 o'clock.

Song, High School glee club; reading, Mrs. Clarence J. McConnell; music, High School orchestra; recitation, Mamie Mayall; reading, Mrs. Clarence J. McConnell.

Third day, morning session, 10:00 o'clock.

Thursday, February 11, 1897.

Prayer; song; The Farmer and Hard Times, T. C. Grady; Birds, Prof. E. A. Gastman; general discussion, subject, Fruit Culture, opened by W. H. Tinch; song.

Afternoon session, 1:30 o'clock.

Home Life on the Farm, Mrs. L. H. Thomas; general business and election of officers; sale of exhibits.

MADISON COUNTY FARMERS' INSTITUTE.

Farmers' Institutes have been held in this county as follows: April 11-13, 1893, at Edwardsville; January 9-11, 1894, at Highland; December 16-17, 1894, at Bethalto; December 10-11, 1895, at Edwardsville, and September 3-4, 1896, at Highland.

The last meeting was under the following management: President, L. A. Spies, St. Jacobs; vice-president, Frank Troechles, Mitchell; secretary and treasurer, Lee S. Dorsey, Moro; executive committee, the above named officers, E. J. Jeffress, Edwardville; J. J. Mulloy, Grant Fork.

The Following is the program of the meeting held at Highland, September 3-4, 1896:

Thursday, first day, morning session.

Leaving depot after arrival of train, march to Lindenthal Park; official reception of guests; music, Highland Military Band; welcome of city, city attorney, J. P. Streuber; response, Louis A. Spies, chairman Farmers' Institute; business meeting and permanent organization.

Afternoon session.

Music, piano solo, Miss Helen Kinnee; lecture, How to Make Money Raising Wheat at Present Prices, M. S. Link, Mitchell; song, Miss Bertha Schott; lecture, How to Keep up and Restore Fertility of the Soil, Joseph E. Miller, Turkey Hill Farm, St. Clair Co.; piano solo Miss Lena Ammann.

Evening session, 7:30 p. m.

Overture, Highland Military Band; grand opening chorus, Mænnerchor Harmonie, with band accompaniment; recitation, Miss Estella Spies, St. Jacob; song, Im Walde, Harmonie; lecture, How to Educate the Boy to make him Stay on the Farm, Charles J. Leutwiler, Alhambra; duet (song), Misses Louisa Mahler and Daisy Chipron; lecture, How to Educate the Farmer Girl to enable her to make Farm Life What it should be, Miss Cora Anderson, St. Jacob; trio (piano, flute, violin), Miss Ida Mahler, Messrs. Jehle and Ruemele; song, Sabbathfeier, Abt. Harmonie.

Friday second day, forenoon session.

Piano duet, Misses Ida Mahler and Lena Ammann; lecture, Pure Food Bill, Hon. J. M. Pearson, Godfrey; song, Miss Ella Roth.

Afternoon session.

Piano solo, Miss Ida Mahler; lecture, Dairying for Profit, A. J. Judd, Dixon, Ill.; song, Miss Daisy Chipron; lecture, Demonstrate what a Perfect Cow of 100 Points should be on Living Subject, A. J. Judd; instrumental duet for piano and violin, Miss Daisy Chipron and E. Clavadescher; address, on Farmers' Institutes, by E. W. Burroughs, Edwardsville; music.

The next meeting will be held at Bethalta. The election of officers for the ensuing year resulted as follows: President, L. A. Spies, St. Jacob; vice-president, Frank Troeckler, Mitchell; secretary and treasurer, Lee S. Dorsey, Moro; executive committee, the above named officers, John S. Culp, Bethalta; E. W. Burroughs, Edwardsville.

MARSHALL COUNTY FARMERS' INSTITUTE.

The Marshall County Farmers' Institute was organized January, 1891, at Lacon, March 4 and 5, 1892; at Wenona, February 3 and 4, 1898; at Henry January 22 and 23, 1894; at Lacon, February, 1895; at Wenona, January 16 and 17, 1896. The last meeting was held at Henry, January 20 and 21, 1897, officers in charge as follows: President, Joseph Miller, Wenona; Vice-President, J. A. Williams, Henry; Secretary and Treasurer, W. H. Parkinson, Wenona; Executive Committee, W. B. Mills, Mt. Palatine; S. S. Merritt, Henry; C. M. Turner, Wenona. The programme of the late meeting is as follows:

Wednesday, 20th, 10 o'clock a. m.

Prayer, Elder G. Halleck Rowe; address of welcome, Mayor C. A. Camp; response, President Joseph Miller; paper, Poultry Raising for Profit, Mrs. James Harrison; discussed by C. W. Aukland and Mrs. George Vail; paper, Economic and Legal Phase of the Farm Fence Question, Isaac M. Forbes; discussed by J. O. Hill and C. E. Burt.

Afternoon session, 1:30 o'clock.

Paper, Conditions Favorable to Profitable Corn Culture, J. H. Beagley, Sibley, Ill.; Is Education as Essential to the Farmer as to the Professional Man?, Mrs. Mattie Wilson; The Use, Benefit and Cost of the Telephone to Farmers, J. W. Thornton.

Evening session, 7 o'clock.

Prayer, Rev. P. K. Hammond; piano solo; song, male quartette; recitation, Mrs. L. M. Cleave; song, Miss Latha Locke; address on education, W. S. Wallace; song, quartette; recitation, Miss Grace Allen; How Grandma Danced the Minuet, Miss Edna Powers; song, quartette.

Thursday, 21st.—9:30 a. m.

Prayer by Rev. D. McLeish; Relation of the County Institute the State Organization, O. Wilson; Agricultural Coöperation, Geo. F. Bell; recitation, J. M. Powers; paper, Farm Dairying for Profit, R. W. Iliff; discussed by Mrs. B. C. Vail and James Wherry.

Afternoon session, 1:30 o'clock.

Election of officers; Mutual Farm Insurance, Charles Stowell, La Prairie; Can the Present System of Taxation be Improved Upon, W. B. Mills.

The next institute is to be held at Lacon, time to be determined later, under the management of the officers-elect, viz.: President, J. A. Williams, Henry; Vice-President, R. W. Iliff, Washburn; Secretary and Treasurer, Elmer Quinn, Henry; Executive Committee, C. E. Burt, S. S. Merritt, Henry; H. C. Crooks, Lacon.

McDONOUGH COUNTY FARMERS' INSTITUTE.

The first meeting of the McDonough County Farmers' Institute was held at the court house, Macomb, Illinois, January 10-11, 1888, at which time the present organization was effected. The more recent meetings are as follows: February 15-16, 1893; February 27-28, 1894; October 17-18, 1894; February 27-28, 1895; October 23-24, 1895. The last meeting was held in the G. A. R. Hall, Macomb, Illinois, February 26-27, 1896. Officers are as follows: President, F. T. Hankins, Sciota; treasurer, Geo. W. Reid, Macomb; secretary, H. E. Billings, Macomb; executive committee, S. Blackstone, Adair; Henry Miles, Vermont; Delos Shannon, New Philadelphia; Levi Mills, Bushnell; James Leard, Prairie City; Porter Young, Industry; J. W. Wilhelm, Macomb; Hattie Vail, Macomb; Harry Knight, Macomb; D. McMillan, Macomb; John Blazeel, Macomb; Geo. W. Reid, Macomb; William Webb, Good Hope; Oscar McElvain, Scottsburg; John W. Wayland, Macomb; Mrs. G. Stickle, Macomb; Abel James, Sciota; Thos. Fulkerson, Hill Grove; Elva Gilchrist, Hill Grove; Wm. Johnson, Colchester; Robert Anderson, Macomb; Frank Herzog, Brandinsville.

McLEAN COUNTY FARMERS' INSTITUTE.

The McLean County Farmers' Institute was organized November 23, 1895, with the following officials: President, Dean N. Funk, Bloomington; vice president, S. N. King, Normal; secretary, E. C. Mitchell, Danvers. Institutes have been held at Bloomington, December 19-20, 1895, and January 13-14, 1897. The programme of the last Institute, held at the Court House, Bloomington, is as follows:

January 13—morning session.

Music, by the Scott Price Orchestra; song—"America," by the audience; prayer, E. Coale, of Holder; welcome address, F. L. Gaston, of Normal; response, President Noah Franklin; music; paper—Baby Beef, Hon. L. H. Kerrick; recitation, Florence Swearingen; music.

Afternoon session.

Orchestra; Paper—Should Farmer Women Organize for their Welfare?" Mrs. C. W. Cooper, of Normal; Rotation of Crops, H. D. Watson, of Clinton; recitation, Miss Parmelia C. Mahan, Lexington; Future of the Draft Horse in McLean County, Capt. S. N. King, of Normal; Music.

Evening session.

Orchestra; Future of the Light Harness Horse, Henry Ringhouse; recitation, Edna VanMeter; Necessity of Woman's Ballot in Moral Reform, Miss P. C. Mason; vocal solo, Ed Mossman, Normal; address, The Farmers' Boy, Prof. A. D. Schamel, University of Illinois; banjo drill, sixteen young girls.

January 14—morning session.

Orchestra; Ensilage, W. J. Barnes, of McLean; Butter Making in McLean County, Wm. Snavelly, of Hudson; Dairying, A. G. Judd, of Dixon.

Afternoon session.

Election of officers; Intellectual and Social Culture for Farmers' Families, Mrs. L. L. Bedill, of Holder; piano solo; Our Poultry Interests, S. S. Noble, of Bloomington; question box; auction of exhibits.

Evening session.

Orchestra; address—Coöperation Among Farmers, W. P. Allen, of McLean; recitation, Miss L. Belle Corson, Normal; violin solo, Miss Mignan Coursen; address—Agricultural Education, Prof. Eugene Davenport, University of Illinois; music.

MORGAN COUNTY FARMERS' INSTITUTE.

The Morgan County Farmers' Institute was organized February 15, 1895, with the officers named below: President, W. H. Rowe; secretary, H. L. Doan; treasurer, Wm. Blackburn, all of Jacksonville; executive committee, Stanfield Baldwin, Thomas Butler, Henry Stevenson, all of Jacksonville, and M. Bush, of Murrayville. Institutes have been held at Jacksonville, March 6-7, 1895 and February 19-20, 1896.

PERRY COUNTY FARMERS' INSTITUTE.

The Perry County Farmer's Institute was organized in 1896. F. L. Williams, Tamaroa, was elected president, and Walter R. Kimzey, Tamaroa, secretary.

PIATT COUNTY FARMERS' INSTITUTE.

The Piatt County Farmers' Institute was organized in 1880. The last meeting was held at Monticello, March 4-5, 1897, with the following officers in charge: President, W. H. Kratz, Monticello; vice-president, Philip Dobson, Cerro Gordo; secretary, Frank V. Dilatush, Monticello; treasurer, Charles W. Piatt, Monticello.

The program was as follows:

March 4 and 5, 1897.

Thursday, 10 a. m.

Music, Monticello mandolin club; prayer, Rev. Todd; address of welcome, Mayor Britton; response, W. M. Dewees; Music, mandolin club; How to Prepare the Ground as a Seed-bed for Grains and Grasses, Thomas Lamb, Jr.

Thursday, 1:30 p. m.

Music, mandolin club; Changes the Farmer Must Adopt, W. E. Lodge; music, mandolin club; Equine Dentistry, Dr. Frank Bales; solo, Mrs. Louie Bales; Improvement of Highways, C. J. Bear; music, mandolin club.

Thursday, 8 p. m.

Music, mandolin club; solo, Miss Lizzie Vent; Care of Our Poor by the County, Mr. Tatman; discussion; song, male quartette.

Friday, 10 a. m.

Music, mandolin club; The Farmers' Interest in Foreign Immigration, Fritz Odernheimer; solo, Miss Kathryn Plunk; Fall Plowing, W. M. Dewees; music, mandolin club.

Friday, 1:30 p. m.

Music, mandolin club; paper, Poultry Raising, Mrs. Judy; solo, Mrs. Maude Johnson; instrumental, solo composed and executed by John Andrew, Jr., General Economies as Applied to Public and Private Affairs, Philip Dobson; Sunshine and Shadows of Farm Life, Mrs. Florence Tippet Duval; music, mandolin club.

Friday, 8 p. m.

Music, mandolin club; solo, Miss Lizzie Vent; lecture, Rev. J. F. Wohlfarth; solo, Miss Kathryn Plunk; music, mandolin club.

The election of officers, resulted as follows: President, W. F. McMillen, Monticello; vice-president, C. J. Bear, Monticello; secretary, Thomas Lamb, Jr., Bement; treasurer, James P. Ownly, Cerro Gordo.

PIKE COUNTY FARMERS' INSTITUTE.

Institutes have been held in Pike county for the last seven years, alternating between Griggsville and Pittsfield, a local committee in each place taking charge of and managing each meeting by getting up the programme, fixing dates and electing officers after the place was selected.

The last institute was held at Pittsfield, January 15-16, 1897, and the following programme was carried out:

Friday, January 15. Morning session, 10 a. m.

Institute called to order by the president, Hon. J. M. Bush, Sr.; music; prayer, Rev. Dr. Black; address of welcome, Mayor R. T. Hicks; response, by the president; music; How to Make the Farm Pay, E. Whittleton, Barry; discussion, John Fenton, W. R. Wills, — Doan, W. D. Shinn, W. D. Fulkerson; The Most Profitable Crop for the Farm, C. G. Winn, Griggsville; discussion, Hardin Cooper, Thomas Pence, W. H. Fulkerson, Edward Penstone, Phil Conboy, S. McFaddin; music; recess until 1:30.

Afternoon session, 1:30 p. m.

Institute called to order; music; Economical Feeding of Stock, A. P. Grout, Winchester; discussion, A. V. Wills, W. R. Wilsey, G. D. Cooper, W. H. Fulkerson, Robert Williams, Thomas Simpkins; Poultry on the Farm, Mrs. M. A. Westlake; What I Know About Farming, Hon. A. C. Bentley; Advantage of the Veterinary to the Farmer, Dr. J. D. Nighbert; Sheep Husbandry, W. D. Shinn, Pittsfield; discussion, A. Shinn, C. B. Dustin, W. L. Dean; music; question box; music; recess until 7:30.

Evening session, 7:30 p. m.

Call to order; music, Time band; My Travels in Switzerland, Col. W. H. Fulkerson, Jerseyville; music; L. F. King, of Huntsville, Ill., to choose his own subject; discussion, Sidney McFaddin, Charles Miller.

Saturday, January 26. Morning session, 9 a. m.

Call to order; prayer, Elder Geo. L. Snively; music; The Future Outlook for the Farmer, J. C. Grover, Quincy; discussion, E. Whittleton, Hardin Westlake, W. D. Shinn, Wm. Dustin; Dairy Farming, Mrs. H. Cohenour, Pittsfield; discussion, C. P. Chapman, E. Whittleton; music; Cattle and their Uses, W. R. Wills, Pittsfield; discussion, G. D. Cooper, A. V. Wills, Thomas Simpkins, Wm. Hess; Potato Culture, H. L. Doan, Jacksonville; discussion, L. L. Lasbury, Orville Foreman; music; recess until 1:30.

Afternoon session 1:30 p. m.

Insect Foes, R. J. Walker, Griggsville; discussion, C. G. Winn, R. Perry; The Future Outlook for Orcharding, Wm. Perry, Milton; discussion, C. G. Winn, Frank Cadwell, H. A. Morton, George Westlake, R. J. Walker, Fred Strauss; music; Small Fruit for the Farmer, W. R. Wilsey; discussion, R. J. Walker; Fred Strauss, E. Whittleton, W. R. Wills, H. A. Morton, C. P. Chapman; question box.

PULASKI COUNTY FARMERS' INSTITUTE.

The Pulaski County Farmers' Institute was organized September 21, 1895, and the first institute was held October 26, 1895, at Villa Ridge under the following management: President, D. W. Prindle; vice president C. Wessenberry; secretary, S. A. Colwell; treasurer, James Browner, all of Villa Ridge; executive committee, James Dille, S. H. Graves, J. H. Conant, J. K. Kruker and S. Harper, all of Villa Ridge. Two very interesting and instructive institute meetings were held, one in October and one in December, at which the cultivation of grasses, raising pork and beef for profit, reclaiming worn out land and fertilizing with green crops were fully discussed and much interest manifested. During the coming winter we expect to take the matter up and carry it forward with greater energy and enthusiasm and consequently more good results.

ROCK ISLAND COUNTY FARMERS' INSTITUTE.

This Institute was organized at Port Byron, December 13, 1897. Institute meetings have been held as follows: Port Byron, December 13, 1887; Taylor Ridge, March 14, 1888; Port Byron, January 17, 1889; Taylor Ridge, February 5, 1889; Milan, February 19, 1889; Milan, January 10, 1890; Reynolds, January 24, 1890; Fairfield, February 28, 1890; Milan, December 18, 1890; Reynolds, January 8, 1891; Barstow, February 19, 1891; Port Byron, March 17, 1891; Milan, December 22-23, 1891; Port Byron, January 26-27, 1892; Barstow, February 19, 1892; Milan, March 10, 1892; Milan, December 20-21, 1892; Barstow, January 5, 1893; Port Byron, January 25, 1893; Edgington, February 9, 1893; Hillsdale, February 28, 1893; Milan, December 12-13, 1893; Barstow, January 5, 1894; Hillsdale, January 26, 1894; Edgington, February 13, 1894; Port Byron, February 27, 1894; Carbon Cliff, December 20-21, 1894; Fairfield, January 10, 1895; Edgington, January 24, 1895; Hillsdale, February 22, 1895; Barstow, December 11-12, 1895; Port Byron, January 3, 1896; Milan, January 30, 1896; Reynolds, December 10, 1896; Port Byron, January, 19 20, 1897. In all thirty-five meetings. The last meeting held at Port Byron, Illinois, January 19, 20, 1897, was under the following management: President, Thomas Campbell; secretary, John G. Osborne; treasurer, J. H. Vander-slice; executive committee, W. S. McCulloch, W. F. Crawford, S. W. Heath, W. D. Hanberg.

The programme of the meeting is as follows:

First day, morning session, commencing at 10 a. m.

Music; devotional exercises, Rev. J. E. Willard; address of welcome, Dr. W. H. Lyford; response, Hon. W. F. Crawford; music; annual address, President Thomas Campbell.

Afternoon session.

Vocal solo, Mrs. W. B. Ladd; My Experience with Vegetables, Mrs. Chas. Ashdown; discussion, Corn and its Commercial Product, E. S. Fursman, of El Passo, Ill.; discussion; County Finances, Fred Titterington.

Evening session.

Music, quartette; recitation, Who was the First Tempter?? by Miss M. Alice Campbell; Tile Drainage and Rainfall, T. C. Lewis; discussion; duet, Mrs. W. B. Ladd and Rolla Ladd; Laws of Especial Benefit to Farmers, C. J. Searle; discussion.

Second day, morning session, commencing at 10 a. m.

Reports of committees; election of officers; selection of delegates to Congressional and States Institutes; Marketing Farm Produce, Dr. W. H. Lyford; discussion.

Afternoon session.

Music; Horticulture on the Farm, E. S. Fursman; discussion; paper on Poultry Raising by Mrs. L. S. Pearsol; discussion; Are Hogs Money Makers? John Schall; discussion; music; How Shall we Keep our Educated Boys on the Farm? Mrs. J. W. Simonson; discussion; song; adjournment.

The following were the officers elected for the ensuing year: President, Thomas Campbell; vice-presidents, M. D. Hanberg, W. F. Crawford; secretary, B. F. Fountaine; treasurer, J. B. Vanderslice; executive committee, W. S. McCulloch, Eli Corbin, S. W. Heath, F. Osborne, A. F. Hollister.

The next meeting to be held at Milan, February 18, 1897.

SCHUYLER COUNTY FARMERS' INSTITUTE.

The Schuyler County Farmers' Institute organization was effected in 1894, and institutes have been held at the court house in Rushville as follows: January 16-17, 1894; February 5-6, 1895; November 5-6, 1895. The last Institute was held in the opera house in Rushville, February 18-19, 1897, and was under the following management: President, Hon. James A. Teel; Vice-President, L. F. King; Secretary, Herman H. Brown; Treasurer, W. J. Thompson. The programme of the last meeting was as follows:

Thursday, February 18, 1897.

Morning session.

Music. Invocation, Rev. J. B. Horney. Address of welcome, E. B. Dixon. Response, M. W. Greer. Music. "Sheep Husbandry in Illinois," John Boice and Henry G. Teel.

Afternoon session.

Music. "The Teaching of Agriculture in our Public Schools," L. F. King. Music. "Hard Roads," John McCabe and J. W. Whitson. "Seed Corn for Next Spring," Wm. J. Thompson. Question box. Discussion. Music.

Evening session.

Prof. Kennedy and pupils occupied part of the evening with songs, recitations, etc. Recitation, "Not Guilty," Master George Ritchey.

Friday, February 19, 1897.

Morning session.

Music. "This Country of Ours," Hon G. W. Dean, of Adams. "Dairy Interests," B. F. Redman and W. F. Whitson. Music. "The Culture of Fruit," Frank Taggart and Jos. Smith. "Hog Raising for Profit," Geo. W. Trone. Music.

Afternoon session.

Music. Election of officers. "Moon Farming," H. V. Teel. "How shall we maintain the fertility of our farms and at the same time make them pay a fair interest on the investment?" M. W. Greer. Music. "Sorghum Culture and Its Manufacture," Geo. H. Mason. Question box. Discussion.

Evening session.

Music. "Washington's Hatchet and Lincoln's Ax," Charles R. Settles. "The Farmer Boy in the General Field," Elder D. E. Hughes. Recitation, "Jed Spilkin's Tandem," Master Geo. Ritchey. Benediction, Rev. E. L. Lord.

SCOTT COUNTY FARMERS' INSTITUTE.

The Scott County Farmers' Institute was organized in January, 1892. Institutes have been held in Winchester as follows: February 18-19, 1892; January 26-27, 1893; January 3-4, 1895, and February 2-3, 1897. The last institute was held by the following named officers: President, A. P. Grout; Secretary, N. R. Smithson; Treasurer, John Longnecker; Executive Committee—W. C. Gibbs, Henry Ball, G. R. Hawks, John Coats, S. Allen, J. F. Wilson.

The programme of the meeting held at Winchester February 2-3, 1897, is as follows:

Tuesday, February 2, 1897.

Afternoon session—1:30 o'clock.

"Small Fruit Culture on the Farm," H. L. Doan, Jacksonville. "Corn Culture and its Commercial Products Illustrated," Hon. E. S. Fursman, El Paso.

Evening session—7:30 o'clock.

Music by Bush Band. Lecture, "The Future of Agriculture," Hon. Norman J. Coleman, St. Louis. Music by Bush Band.

Wednesday, February 3, 1897.

Morning session, 9:30 o'clock.

"Farming Compared with Other Industries," George W. Dean, Adams. Query box.

Afternoon session—1:30 o'clock.

"The Hog on the Farm," Hon. A. J. Lovejoy, Roscoe. Query box. Election of officers.

ST. CLAIR COUNTY FARMERS' INSTITUTE.

The St. Clair County Farmers' Institute was organized November 28, 1894, at Belleville. Institutes have been held at Belleville as follows: January 16-17, 1895; February 6-7, 1896, and February 23-24, 1897. The last meeting was held in Liederkranz Hall, Belleville, Ill., February 23-24, 1897, by the following officers: President, G. R. Tate, Smithton; A. B. Ogle; treasurer, Frederick Helms, last two of Belleville.

Afternoon session, 1 o'clock.

Opening Remarks by the President; Music; Taxation in Illinois, Hon. Peter Seibert, Fayetteville; Discussion; Thorough Training in Homekeeping and Housekeeping, Miss Emma Seibert, Belleville; Discussion; Music; Theoretic Dairying, George K. Thomas, Belleville; Discussion; Music; Adjournment.

Night session, 7:30 o'clock.

Music, Alpine Quartette; Best Endeavor, Mrs. Katharine Stahl, Moro; Discussion; Recitation, Miss Estella Messenger, Belleville; Music, Alpine Quartette; The Educated Farmer, H. Elmer McKelvey, Sparta; Discussion; Woman as the Home Physician, Miss Carrie H. Goodrich, Cobden; Discussion; Recitation, Miss Grace Dake, Belleville; Music, Alpine Quartette; Adjournment.

Wednesday, morning session, 9:30 o'clock.

Music; What is a Nation Without a Farmer, Alfred O. Metzler, Floraville; Discussion; Wealth vs. Education as An Element for Elevating a Community, Hon. Joseph E. Miller, Belleville; Question Box; Free Rural Mail Delivery; General Discussion.

Afternoon session, 1:30 o'clock.

Small Fruit, G. W. Phillips, Belleville; Discussion; Should Illinois Farmers Favor a Uniform System of Text-Books for the Schools of This State? General Discussion, led by County Superintendent Charles Hertel, Wm. Schaumlöffel, W. H. Wilderman and G. C. Patterson; Transaction of Business; Election of Officers; Adjournment.

TAZEWELL COUNTY FARMERS' INSTITUTE.

The present organization was completed January 14, 1896. The first Institute was held in Armory Hall, Delavan, January 14-16, 1896. The second at the same place January 12-14, 1897. The officers of the last Institute were as follows: President, Ralph Allan, Delavan; vice president, Jake Puterbaugh, Mackinaw; secretary, J. O. Jones, Delavan; executive committee, Levi Orendorf, W. Armington, J. G. Houghton, C. E. Schureman, Delavan; A. B. Sperry, Allentown; Valentine Graff, Minier; W. H. Bates, Pekin; C. Spring, Washington; Hon. D. W. Vittam, Canton; Mrs. W. Hall and Mrs. W. N. Sunderland, Delavan.

The program of the meeting held in Delavan, January 12-14, 1897, is as follows:

Tuesday morning, 10 o'clock.

Organization and Appointment of Committees.

Afternoon, 2 o'clock.

Papers on Corn Growing, Luke Bennett and Jacob Puterbaugh; General Discussion on the subject of Clover; Paper on Hog Raising, John Betzelberger.

Evening, 7:30 o'clock.

Paper, Children, the Hope of the Nation; their Wants and Needs, Mrs. F. L. Calkins, Delavan; Address, Prof. Holden, of the Illinois State University.

Wednesday morning, 10 o'clock.

Paper, Horses, A. L. Robinson, Tremont, Ill.; Paper, Sheep Husbandry, C. and W. Frazee; Paper, Feeding Cows for Butter, Hal. Pawson; Paper, Wheat, Wm. Reardon.

Afternoon, 2 o'clock.

Paper, Butter Making, Mrs. James L. Reid; Papers, Poultry, Mrs. A. M. Woodrow and Mrs. George Scott; Diseases of Hogs, A. M. Caldwell, New Holland, Ill.

Evening, 7:30 o'clock.

Papers, Roads and Highways, J. A. Mason and T. R. Heaton; Papers, Floriculture, Miss L. B. Allen and Mr. N. O. Caswell.

Thursday morning, 10 o'clock.

Election of officers for the ensuing year; Papers, Cattle Feeding, J. W. Crabb and R. O. Brawner; Prices of Farm Products, Valentine Graff and J. G. Houghton.

Afternoon, 2 o'clock.

Paper, Farm Homes, Mrs. W. V. Baily; Papers, Fruit Growing, M. W. Carter and Wm. E. Jones, Lincoln, Ill.

There was a general discussion of all subjects following the papers read.

VERMILION COUNTY FARMERS' INSTITUTE.

Vermilion County Farmers' Institute was organized September 21, 1895, at Danville. The first institute was held at Danville January 8-9, 1896. The second institute was held at the same place January 12-14, 1897, by the following officers: President, W. G. Herron, Allerton; vice president, E. R. McConnell, Hoopeston; treasurer, Wiley Fowler, Danville; secretary, L. H. Griffith, Danville; executive committee, Elijah Potter, Snider; E. H. Whitham, Rankin; Milton Mills, Ridge Farm; James Chipson, Catlin; Thomas

Ross, Danville; Reason Rouse, Danville; M. H. Waterman, Ridge Farm; Jacob Zapp, Georgetown; Harvey Bowen, Hoopeston; A. B. Judy, Blue Grass; Z. Starr, Bismarck; T. A. Collison, Collison; J. S. Purnell, Muncie; Philip Cadle, Rossville; Taylor Gerlaugh, Hastings; Henry Davis, Fairmount.

The programme for the last meeting is as follows:

Tuesday January 12, 7:30 p. m.

Music, Glee Club; Vermilion County Scenery, A. I. Love, Esq., Danville; music; Early Days and Ways in Vermilion County, H. W. Beckwith, Esq., Danville.

Wednesday, January 13, 9 a. m.

Prayer; welcome address, Mayor W. L. Runyan, Danville; response, Hon. Geo. W. Hobson, Hope; president's address, W. G. Herron, Esq., Allerton; Live Stock, Eugene Davenport, dean of the Agricultural College, University of Illinois; discussion, J. A. Bantz, Muncie.

Wednesday, afternoon, 1:30.

Music; Improving the Poultry, S. H. Oakwood, Danville; Cause of Agricultural Unrest, Mrs. Bel F. Staats, Dana, Ind.; Cultivation of Small Fruits, O. B. Gravat, Snider; appointment of committees, reports, etc.

Wednesday evening, 7:30.

Music; Reading for Farmers' Wives and Daughters, Mrs. Jane P. Carter, Champaign; music; Resources of Vermilion County, Hon. E. R. E. Kimbrough, Danville.

Thursday, January 14, 9 a. m.

Country Roads, Hon. J. H. Oakwood, Danville; The Country School, Fred Bass, Armstrong; The Future of American Agriculture, Hon. J. M. Thompson, president Farmers' Institute, 12th district, Joliet; discussion, J. J. Southworth, Allerton; reports of committees; election of officers.

Thursday afternoon, 1:30.

The Farmer's Boy, Mrs. J. J. Southworth, Allerton; Experience of Trap and Barrier Method with Chinch-bugs, Albert Sanders, Georgetown; What about Corn? (a) How to prepare the soil for planting, A. B. Judy, Blue Grass; (b) How to plant and cultivate, E. R. McConnell, Hoopeston; (c) How to dispose of the crop, John E. Smith, Hope; How to Raise Wheat in Vermilion County, A. N. Leneve, State Line, Ind.

WARREN COUNTY FARMERS' INSTITUTE.

Warren County Farmers Institute was organized in February, 1893. Institutes have been held in Monmouth as follows: February 18-19, 1893; February 20-21, 1894; December 17-18, 1895, and February 11-12, 1897.

The last Institute was under the following management: President, J. R. Barnett; vice president, J. N. Carson; secretary, Ed Miller; treasurer, O. S. Barnum; executive committee, Geo. C. Rankin, Wm. Firoved, J. Kirby, P. H. Shelton.

The programme of the meeting held February 11-12, 1897, is as follows:

Thursday, February 11, 10 a. m.

Prayer, Rev. J. H. Delano; address of welcome, Mayor Lahann; response, Secretary J. Ed. Miller; reading, Hiram Norcross, Monmouth; Farming as a Business, Hon. C. M. Rodgers, Eleanor; Profitable Beef Production, Leon McWhorter, Aledo; Rotation of Crops, Andrew H. Irvine, Monmouth.

1:30 p. m.

Music by Wagner Quartette; Poultry, Thos. S. Barton, Monmouth; How may our Country Schools be Improved, County Superintendent Mary E. Sykes;

The Relation of the Home to the School, S. M. Inglis, State Superintendent; Present Situation of Hard Roads Question, Hon. S. K. T. Prime, Dwight; Agriculture Among the Alps, T. W. Todd, Monmouth.

Friday, February 12, 10 a. m.

Prayer, Rev. J. W. Frizelle; Fruit for the Farm, Rev. John Rugh, Monmouth; Dairy Farming, H. L. Speakman, Monmouth; Music, Brunder Bros.; The Roadster Horse Blood Lines and Climatic Outcrosses Considered; Diseases of Farm Animals, Prof. D. McIntosh, Illinois State University; election of officers.

1:30 p. m.

Music by Bruner Bros.; Some Things About Bacteria, Prof. S. S. Maxwell, Monmouth College; Our Farmer Girls, Miss Madge Torrence, Monmouth; The Farmers' Wife, Mrs. H. E. Firoved, Monmouth,

The election of officers resulted as follows: President, Hon. C. M. Rogers; vice president, H. L. Speakman; secretary, J. Ed. Miller; treasurer, O. S. Barnum; executive committee, J. R. Barnett, D. C. Frantz, J. W. Coghill, T. M. Capps.

WHITE COUNTY FARMERS' INSTITUTE.

The White County Farmers' Institute was reorganized November 13, 1895, with the following officers: President, Chris Sturmet; vice-president, Leonard Miller; secretary, R. L. Organ; treasurer, Thomas Spelman, all of Carmi, and a vice-president for each township. Our institute was held at Carmi in February, 1892.

WINNEBAGO COUNTY FARMERS' INSTITUTE.

The Winnebago County Farmers' Institute was organized January 28, 1892. Institutes have been held at Rockford as follows: February 17-18, 1892; February 16-17, 1893; February 15-16, 1894; January 31 and February 1, 1895; January 30-31, 1896, and January 28-29, 1897.

The last institute was under the following management: President, A. J. Lovejoy; vice-president, W. L. Frisbie; secretary, A. E. Cutler; treasurer, George W. Collins; executive committee, D. B. Redington, J. D. Hart, W. H. Miller, John Wilcox, Laurence McDonald.

The program of the late meeting is as follows:

Thursday, January 28, morning session.

Call to order and remarks by the president, A. J. Lovejoy; prayer, Rev. F. F. Farniloe; The Breeding, General Management. Feeding for Market, and the General Outlook for Sheep, John Wilcox, Burritt; Profitable Farming in Hard Times, Willard Osborne, Winnebago; Clover, C. H. Everett, Beloit; Economies in Hard Road Building, John R. King, Sugar Grove; appointment of committee; Cheapest Method of Milk Production and How to Feed a Cow for 5 cents per Day, A. G. Judd, Dixon; Select Reading, Miss Maud Dennis; Hog Raising for Profit, James Graham, Stillman Valley; Bees on the Farm, Dr. C. C. Miller, Marengo.

Friday, January 29, morning session.

Horticulture on the Farm, E. S. Fursman, El Paso; Select Reading, Miss Maud Dennis; Feeds and Feeding, Prof. W. A. Henry; reports of committees.

Friday afternoon program.

Physical Culture, Mrs. F. S. Kent, Rosecoe; Select Reading, Miss Dennis; Education for the Farmer, Prof. Henry; Fruits on the Farm, Amos F. Moore, Polo; question box and open parliament; business; election of officers, etc.

COUNTIES NOT ORGANIZED OR NOT REPORTED.

Alexander county, not organized.
Clay county, not organized.
Clinton county, not organized.
Bureau county, not organized.
Calhoun county, not organized.
Cass county, not organized.
Cumberland county, not organized.
Fayette county, not organized.
Hardin county, not organized.
Jackson county, not organized.
Kane county, not organized.
Lake county, not organized.
Macoupin county, not organized.

Marion county, not organized.
Massac county, not organized.
Monroe county, not organized.
Moultrie county, not organized.
Peoria county, not organized.
Pope county, not organized.
Richland county, not organized.
Saline county, not organized.
Shelby county, not organized.
Union county, not organized.
Washington county, not organized.
Whiteside county, not reported.
Williamson county, not organized.

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